

Oil-Water Separators

APPENDIX A

OWS1573

OWS1573 - Vehicle Maintenance Shop (SITE ID OWS1573)

Site Location

Site OWS1573 is located in the southern part of the cantonment “triangle” on Parcel Block 8, Lots 11 and 14. Site OWS1573 is located within ERP Site ST009, which is currently under separate investigation. However, Site OWS1573 will not be considered as a source within ERP Site ST009.

Site Characteristics

Site features are shown on Figure A1-OWS1573. The site consists of an oil-water separator (OWS) (OWS 1573) located within Building 1573, the Vehicle Maintenance Shop. The feature of concern at Site OWS1573 is the OWS.

Site Description and History

Building 1573 was constructed in 1994 (CEMML, November 2008) after the 1993 drawdown of military personnel. The USAF use of Building 1573 was limited because it was put in use after the military mission was reduced and the Base was placed in caretaker status. Ownership of Building 1573 was transferred to AKDOT&PF in 2008 (USAF and AKDOT&PF, October 1, 2008). The building is currently used for maintaining heavy equipment and storage.

The 500-gallon OWS, which consists of a sump pit below the floor, is active and has been in use since 1995. Wastewater is discharged to floor drains, filtered through sediment traps, and discharged to the OWS. The contents of the OWS are pumped from the sump pit into drums for disposal. Schematics of the OWS show that it was constructed with cathodic protection and an electronic leak detection system.

In an October 2009 communication, Mr. Randy Warnke, 611th Air Support Squadron, former manager of the Base support contractor, indicated that the OWS was identified as an “unauthorized discharge to sanitary sewer” at one time (Warnke, October 2009). Although the “unauthorized discharge” would be indicative of improper use, maintenance, or connection, there is no other available historical reference of a leak or release from the OWS or records indicating that it was ever connected to the sanitary sewer. The 2010 EBS report (USAF, February 2010) states that the “Although no evidence of a release was identified for this OWS, the integrity of the OWS cannot be confirmed without sampling.” During the October 2009 site visit, no visual evidence was found that would indicate a potential historical release from the OWS. Because the OWS includes both cathodic protection and an electronic leak detection system, it is considered to be of good integrity.

Historical aerial photographs of the site, dated 1963, 1969, 2002, and 2009, are shown on Figure A2-OWS1573. Building 1573 appears in the 2002 and 2009 photographs.

Summary of Previous Investigations

No investigations have been conducted or samples collected at Site OWS1573.

October 2009 Site Visit Observations

A site visit of Site OWS1573 was conducted in October 2009. A photograph of the OWS, floor drain, and pump is provided in Figure A3-OWS1573. During the site visit, the OWS construction was confirmed to include cathodic protection and an electronic leak detection system. Building 1573 was observed to have a concrete slab. No evidence was found that would indicate a potential release from the OWS.

Target Analytes

Because a release has not occurred from Site OWS1573, no target analytes are present at the site.

Potential Exposure Pathways and Receptors

Because a release has not occurred from Site OWS1573, media at the site have not been impacted. Therefore, no complete human health or ecological exposure pathways exist at the site.

Conclusions

OWS 1573 was installed in Building 1573 in 1994. Based on the modern construction of the OWS, which includes cathodic protection and an electronic leak detection system, an undetected release from the OWS is unlikely. During the 2009 site visit, no visual evidence was found that would indicate a potential historical release from the OWS.

Recommendation: "Non-Site"

Because a release has not likely occurred at Site OWS1573, designation of Site OWS1573 as a "Non-Site" is recommended. Parcel Block 8, Lots 11 and 14 will continue to be investigated as ERP Site ST009, but it is recommended that Site OWS1573 be removed from consideration as a potential source area.

References

- Center for Environmental Management of Military Lands (CEMML). November 2008. *Integrated Cultural Resources Management Plan, Galena Airport, Alaska.*
- U.S. Air Force (USAF). February 2010. *Final Environmental Baseline Survey Air Force Property at Galena Airport, Alaska.*
- U.S. Air Force (USAF) and the State of Alaska Department of Transportation and Public Facilities (AKDOT&PF). October 1, 2008. Agreement on Property Conditions at Galena Airport, Alaska.
- Warnke, Randy. October 2009. Randy Warnke, U.S. Air Force (USAF), 611th Air Support Squadron. Personal Communication with Vivian Tokar/CH2M HILL.



LEGEND

- OWS1573
- Adjacent Site
- Active Fillstand Area
- Removed Fillstand Area
- Abandoned Fuel Line (1952)
- Abandoned Fuel Line (1962)
- Abandoned Fuel Line
- Main Fuel Line
- Defueling Fuel Line
- Service Fuel Line
- Service Wastewater Line
- Main Storm Sewer Line
- Drop Inlet

Note:
1. Imagery September 4, 2009. Pixel size 0.25 meters.

VICINITY MAP

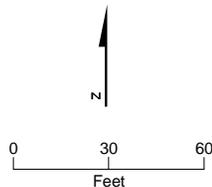
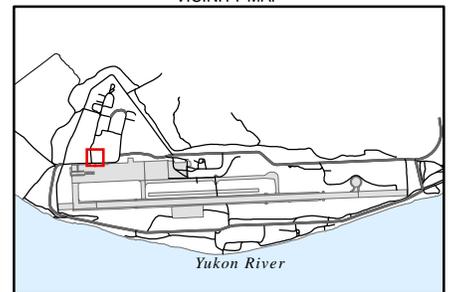
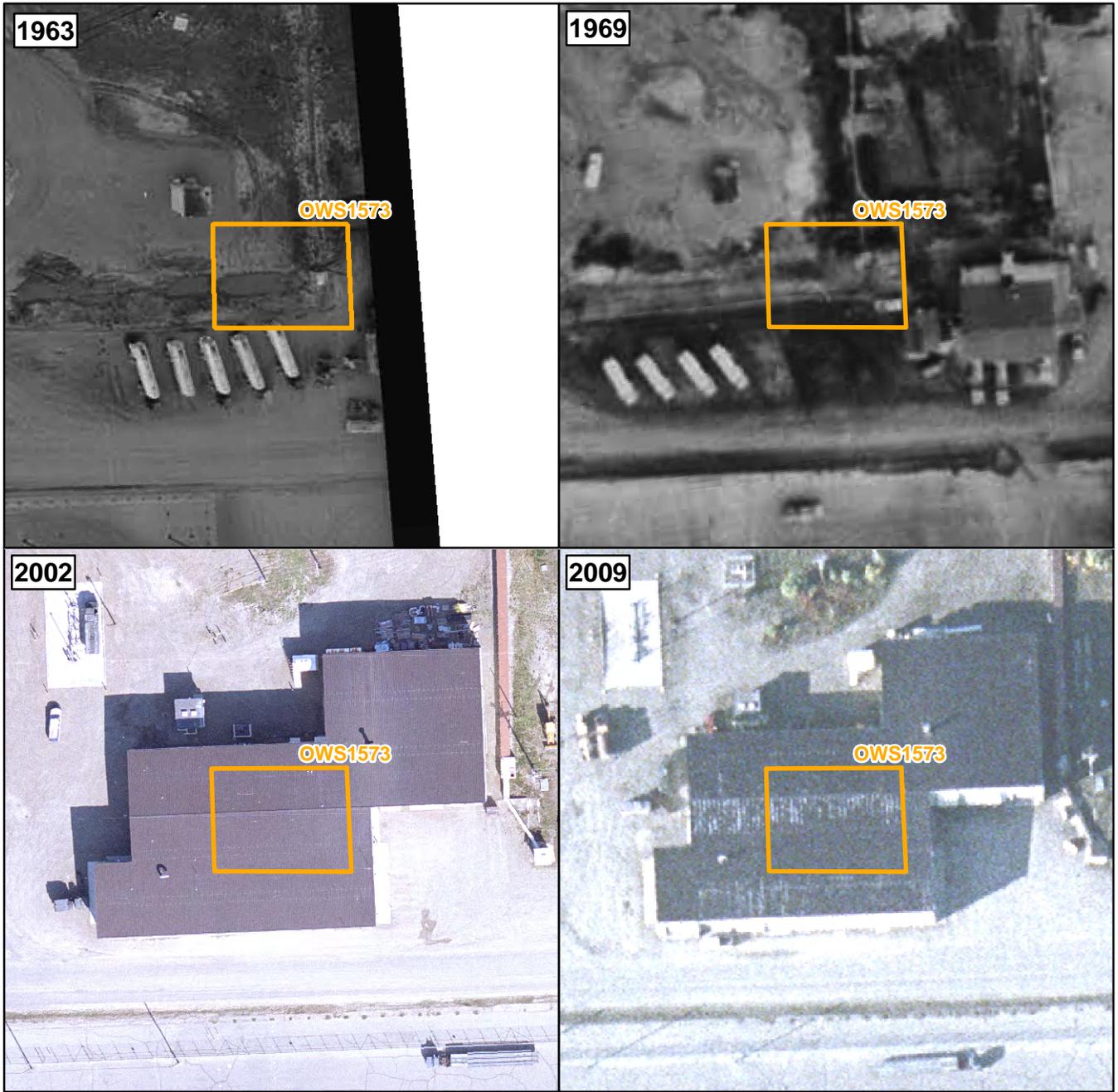


FIGURE A1-OWS1573 Site Layout

Preliminary Assessment Report
Former Galena Forward Operating Location, Alaska



LEGEND

 OWS1573

- Notes:
1. Photography Dated 9-4-1963, Georeferenced.
 2. Photography Dated 1969, Georeferenced.
 3. Imagery August, 2002. Pixel size 0.075 meters.
 4. Imagery September 4, 2009. Pixel size 0.25 meters.

VICINITY MAP

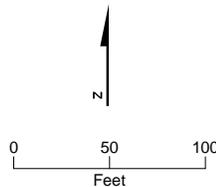
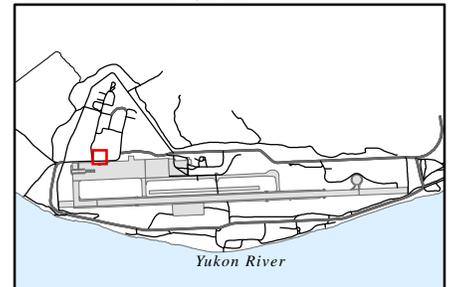


FIGURE A2-OWS1573
Historical Aerial Photography
 Preliminary Assessment Report
 Former Galena Forward Operating Location, Alaska



FIGURE A3-OWS1573
OWS, Floor Drain, and Pump in Building 1573, October 2009

APPENDIX A

OWS1833

OWS 1833 - Morale, Welfare, and Recreation Storage (Site ID OWS1833)

Site Location

Site OWS 1833 is located in the northwestern corner of ERP Site ST005 in Parcel W, approximately 10 feet southeast of the southeastern corner of former Building 1833.

Site Characteristics

Site features are shown on Figure A1-OWS1833. Building 1833 was a 350-square-foot structure that was constructed in 1956 as a Morale, Welfare, and Recreation (MWR) storage shed. Building 1833 became inactive in 1993, and was demolished in 2007.

Site Description and History

Building 1833 was identified in the 1996 EBS report (USAF, June 1996, Table 3-7) as having an inactive 55-gallon-drum OWS. An AF Form 1430, Real Property Accountable Record, was not available for Building 1833.

Historical aerial photographs of the site, dated 1963, 1985, and 2002, are shown on Figure A2-OWS1833. The buried drum is clearly visible in the 2002 photograph. Figure A3-OWS1833 shows Building 1833 in 2008. A 2008 photo of the drum partially buried in the ground and a pipe extending from the building to the drum is shown on Figure A4-OWS1833.

Summary of Previous Investigations

No previous investigations or sampling have been conducted at Site OWS1833.

October 2009 Site Visit Observations

An inspection was conducted at Site OWS1833 in October 2009. The site was observed to be an empty lot covered in gravel and sparse grasses. Figure A5-OWS1833 shows the current condition of Site OWS1833.

Target Analytes

Because of the unknown disposal activities which may have occurred at Site OWS1833, a multi-chemical subsurface release target analyte list is recommended, including: DRO, GRO, RRO, VOCs, PAHs, metals (arsenic, barium, cadmium, chromium, lead, mercury, nickel, selenium, silver, and vanadium), and PCBs.

Potential Exposure Pathways and Receptors

Based on current and reasonably anticipated potential future land uses at Site OWS1833, potential human receptors and potentially complete exposure pathways include the following:

- **Excavation/Construction Workers:** Potential exposure to chemicals in soil to 15 feet bgs and shallow groundwater. Potentially complete routes of exposure to soil include incidental soil ingestion, dermal contact with soil, and inhalation of ambient vapors or dust generated from wind or during onsite excavation activities. Potentially complete routes of exposure to shallow groundwater include dermal contact with groundwater and inhalation of ambient vapors from groundwater.
- **Future Occupational Workers:** Potential exposure to chemicals in surface soil to 2 feet bgs. Potentially complete routes of exposure to surface soil include incidental soil ingestion, dermal contact with soil, and inhalation of ambient vapors or dust generated from wind. Vapor intrusion from VOCs in environmental media migrating into current or future occupational buildings is also a potentially complete exposure route.
- **Hypothetical Future Residents:** Potential exposure to chemicals in soil to 15 feet bgs and groundwater. Potentially complete routes of exposure to soil include incidental soil ingestion, dermal contact with soil, and inhalation of ambient vapors or dust generated from wind. Potentially complete routes of exposure to groundwater include ingestion, dermal contact, and inhalation of VOCs during showering or other household activities. Vapor intrusion from VOCs in environmental media migrating into current or future residences is also a potentially complete exposure route.

Ecological habitat around the site is of marginal quality, and is dominated by gravel with sparse, low grass. Ecological exposure pathways are considered incomplete, but possible if target analytes are found to be present in groundwater that may daylight downgradient. More site information or a refined understanding of the groundwater system is needed to determine if those pathways are complete. Consequently, no terrestrial ecological receptors were identified for evaluation onsite.

An aquatic ecological exposure pathway is unlikely to be complete because Site OWS1833 is located more than 1,000 feet from the Yukon River. Data are being collected as part of the FSP for the 2010 Hydrogeologic Study to refine the understanding of the groundwater system at the FOL. This pathway may be further evaluated if subsurface contamination is found at the site and the data collected as part of the hydrogeological characterization suggest a potential for site contamination to affect the Yukon River.

Conclusions

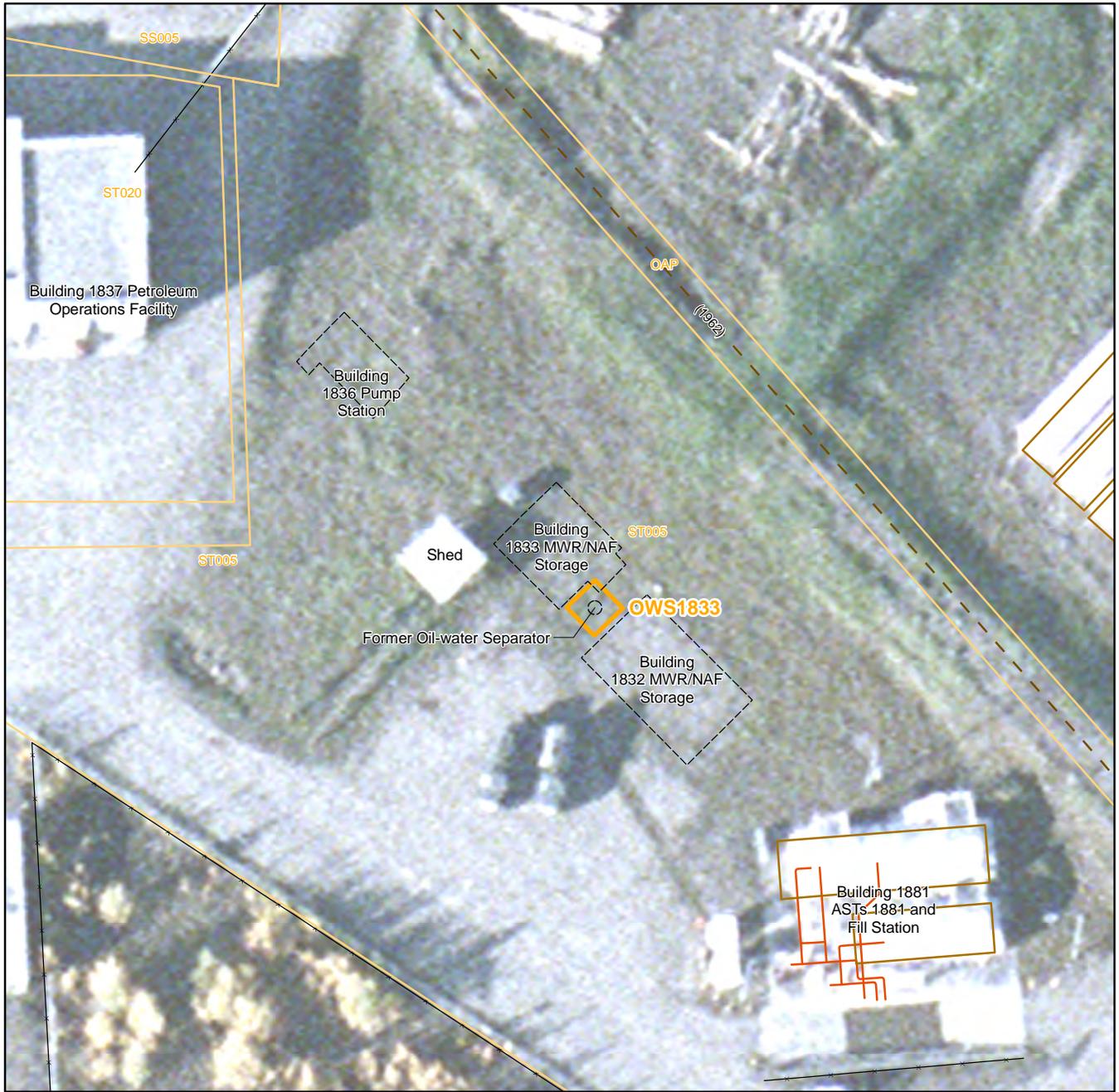
The 1996 EBS report and a photograph from the 2008 EBS report (Figure A4-OWS1833) confirm that a drain line exits the southern wall of Building 1833 and extends south to a partially buried 55-gallon drum (USAF, June 1996; USAF, May 2008). The historical uses of the drain line and drum could not be determined from available historical documents. No previous investigations or sampling have been conducted at the site.

Recommendation: Site Inspection Sampling

Site inspection soil sampling for a subsurface multi-chemical release is recommended to confirm the presence or absence of impacts from historical activities at Site OWS 1833.

References

- U.S. Air Force (USAF). May 2008. *Final Environmental Baseline Survey Galena Airport, Alaska.*
- U.S. Air Force (USAF). June 1996. *Final Installation-Wide Environmental Baseline Survey Galena, Alaska, 611th Civil Engineer Squadron, Elmendorf AFB, Alaska.*



VICINITY MAP

LEGEND

- OWS1833
- Adjacent Site
- Approximate Location of Former Feature
- Fuel Tank
- Fence
- Abandoned Fuel Line (1962)
- Main Fuel Line

Note:
1. Imagery September 4, 2009. Pixel size 0.25 meter

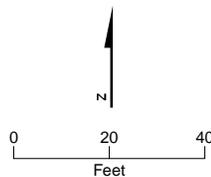
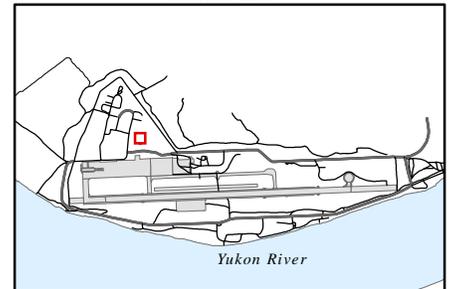


FIGURE A1-OWS1833 Site Layout

Preliminary Assessment Report
Former Galena Forward Operating Location, Alaska



LEGEND

 OWS1833

- Notes:
1. Photography dated 9-4-1963, georeferenced
 2. Photography dated 1985, georeferenced
 3. Imagery August 2002. Pixel size 0.075 meter

VICINITY MAP

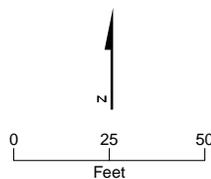
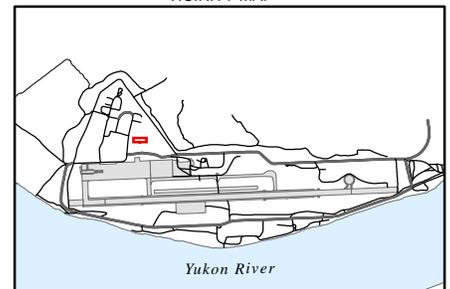


FIGURE A2-OWS1833
Historical Aerial Photography
 Preliminary Assessment Report
 Former Galena Forward Operating Location, Alaska



FIGURE A3-OWS1833
Building 1833, looking Northeast
Source: USAF, May 2008, Photo 40



FIGURE A4-OWS1833
View of the Drum Partially Buried in the Ground and a Pipe Coming from Building 1833
Source: USAF, May 2008, Photo 39



FIGURE A5-OWS1833
Looking South at former Building 1833, October, 2009

APPENDIX A

OWS1845

OWS 1845 - Vehicle Maintenance Shop (Site ID OWS1845)

Site Location

Site OWS1845 is located at Building 1845, Vehicle Maintenance Shop, in the northwestern portion of the Former Galena FOL.

Site Characteristics

Site features are shown on Figure A1-OWS1845. The ground surface around Site OWS1845 is pavement/gravel and provides no viable habitat for plants or animals. The feature of concern at Site OWS1845 is a removed OWS.

Site Description and History

Building 1845 was built in 1959 and used by the (USAF as a vehicle maintenance shop. Because the facility has undergone renovations and the plumbing/drainage system has been restructured over time, several locations of the OWS, floor drains, and/or sumps have been identified as existing throughout the history of the building. The following features will be investigated as potential sources of contamination at OWS1845:

- The 1996 remedial investigation (RI) report states that an “upgrade of the floor drains was conducted in 1988; however, no information could be found for the floor drains prior to 1988. It is suspected that there may have been a discharge from the sump located near the center of the southern edge of the building” (USAF, March 1996). The report also indicated that the contents of this sump were pumped to a holding tank to await disposal (USAF, March 1996). This description is consistent with notes recorded during the October 2009 site visit. Construction drawings dated 1988 (reviewed during the site visit) indicated that a feature labeled “sump/pit” was shown inside the building along the south wall.
- The 1988 construction drawings show an OWS located inside Building 1845 along the building’s north wall, approximately 20 to 25 feet west of the northeast corner. The drawing is included in the supporting documentation.
- The 1988 construction drawings also show an addition to the floor drain on the western end of the building.

Although the 1996 EBS report states that the OWS had a capacity of 110 gallons and was used from 1959 to at least 1996 (USAF, June 1996, Table 3-7), it is possible that the OWS was installed in 1988 when the floor drain sump was upgraded. Table 3-4 of the 2010 EBS report (USAF, February 2010) lists the status of the OWS as “removed.” Historical aerial photographs of Site OWS1845, dated 1963, 1978, and 2002, are shown on Figure A2-OWS1845. Building 1845 is shown on all three photographs.

Summary of Previous Investigations

The location of the OWS could not be determined, and no records of the OWS or soil release verification samples have been located.

The area around Building 1845 has been investigated as a possible source of contamination at ERP Site ST009, West Unit JP-4 Fill Tanks (USAF, March 1996, p. 3-78) and at ERP Site SS006, Trichloroethene (TCE) Area. Soil, soil gas, and groundwater samples were collected in the vicinity of Building 1845. Figure A3-OWS1845 shows the historical sample locations in the vicinity of Site OWS1845.

Remedial Investigation Soil Gas Survey (1993)

In 1993, soil gas samples were collected to identify potential release locations in the vicinity of Building 1845 and surrounding buildings. Two soil gas samples, C4 and C5, were collected adjacent to the north and south sides of Building 1845, respectively. Location C5 is in the vicinity of the OWS along the north wall of Building 1845 (locations and results are included in the supporting documentation). A screening-level groundwater sample was also collected from sample C5 and analyzed for aromatic hydrocarbons, total petroleum hydrocarbons (TPH), and VOCs. Total organic vapors in soil gas were 5 parts per million by volume (ppmv) at Sample C5 and 9 ppmv at Sample C4. No aromatic hydrocarbons, TPH, or BTEX were detected in the groundwater from Sample C5.

Remedial Investigation Soil Sampling (1994)

In 1994, two surface soil samples (MB-SS-01 and MB-SS-16; see Figure A3-OWS1845) were collected at the south side of Building 1845 and analyzed for organochlorine pesticides and PCBs (USAF, March 1996, pp. 3-157 and 3-58). Dieldrin concentrations at MB-SS-16 exceeded the SI soil SL. PCBs were not detected.

Remedial Process Optimization Field Activities (2002–2004)

In 2002, soil gas samples were collected at six locations (1845-SG-019 through 1845-SG-024) around the perimeter of Building 1845 (Earth Tech, May 2004). Sample depths were 10 feet and 15 feet bgs at 5 locations, and 5 feet and 10 feet bgs at 1 location. Gore Sorber samples were collected at three of these locations. As shown in the supporting documentation, total volatile hydrocarbon (TVH) concentrations in the samples ranged from 0 to 2,500 ppmv, with the maximum detection occurring south of Building 1845. BTEX and TCE were not detected in any of the soil gas samples. BTEX (1.75 µg) and TCE (3.2 µg) were detected in the Gore Sorber sample south of the building (1845-G-022). This historical sample is near the reported location of the floor drain/sump. TCE was not detected at the sample locations northwest and southeast of Building 1845. Similarly to the 1993 survey results, the highest contaminant concentrations were observed at Building 1700, and at Buildings 1842 and 1844, south of Building 1845.

In 2002 and 2004, groundwater samples were collected northwest of Building 1845 at Microwell 1845-HP-020 and northwest of Building 1842 at Microwell 1845-HP-026 (both screened from 19.5 to 20 feet bgs). Microwell 1845-HP-020 was placed at the location of suspected floor drain discharge from Building 1845 (Figure A3-OWS1845). Groundwater

samples were analyzed for VOCs, metals, and natural attenuation indicator parameters. Results for BTEX, TCE, TCE degradation products cis-1,2-dichloroethene (DCE), and vinyl chloride (VC) indicate that concentrations of these compounds were below SI groundwater SLs at Microwell 1845-HP-020. The microwell southwest of Site OWS1845 (1845-HP-026) had exceedances of the SI groundwater SLs for TCE and 1,2-DCE.

2008 Soil Vapor Survey at ERP Site SS006

In September 2008, a soil vapor survey was conducted at ERP Site SS006, south of Site OWS1845. Sample locations along the northern side of Building 1842 are shown on Figure A3-OWS1845 (locations with the naming convention 1842-SG###). Soil vapor samples were collected between 5 and 10 feet bgs and analyzed for TPH and VOCs. The highest concentrations of TPH (up to 880,000 parts per billion by volume [ppbv] at 1842-SG356) and VOCs (up to 796,880 ppbv TCE at 1842-SG358) were detected at sample locations along the northeast corner of Building 1842.

2009 Site Characterization at ERP Site SS006

In September and October 2009, soil samples were collected from one location (SS006-MC580). Groundwater samples were collected from eight direct-push locations (SS006-GW494, SS006-GW514, SS006-GW517, SS006-GW518, SS006-GW520, SS006-GW559, SS006-GW560, and SS006-GW562) and four wells (SS006-MW53, SS006-MW54, SS006-MW55, and SS006-MW56) south of Building 1845 (Figure A3-OWS1845). Soil samples were collected from depths ranging from 4 to 24 feet bgs. Groundwater samples were collected from depths ranging from 20 to 47 feet bgs. The samples were analyzed for a limited VOC list.

Soil sample results exceeded the SI SLs for cis-1,2-DCE and TCE in most of the samples collected from SS006-MC580. Soil samples with non-detected results had limits of detection (LOD) exceeding the SI soil SL. The highest detected concentrations of cis-1,2-DCE (14 to 17 mg/kg) were from the 10- to 14-foot bgs interval. The highest detected TCE concentration (5.1 mg/kg) was from the 4- to 5-foot bgs interval; however, the result was estimated.

VOCs detected at concentrations exceeding the SI groundwater SLs included 1,1-DCE, benzene, cis-1,2-DCE, methylene chloride, naphthalene, trans-1,2-DCE, TCE, and vinyl chloride. Direct-push groundwater sample location SS006-GW520 had the highest exceedances of SLs for most of the VOCs (TCE up to 5,100 µg/L and cis-1,2-DCE up to 11,000 µg/L). At the four direct-push groundwater sample locations (SS006-GW517, SS006-GW518, SS006-GW559, and SS006-GW562) and one monitoring well (SS006-MW53) closest to OWS1845, TCE was detected at concentrations up to 47 µg/L (SS006-MW53), 1,1-DCE was detected at concentrations up to 8.2 µg/L (SS006-GW518), cis-1,2-DCE was detected at concentrations up to 2,300 µg/L (SS006-GW518), and vinyl chloride was detected at concentrations up to 22 µg/L (SS006-GW518). BTEX concentrations in groundwater at the four direct-push locations and single monitoring well sampled in 2009 ranged from 0.13 to 5.4 µg/L for benzene, nondetect to 0.77 µg/L for toluene, nondetect to 1.1 µg/L for ethylbenzene, and nondetect to 4 µg/L for total xylenes. The highest concentrations of BTEX compounds were observed at SS006-GW559 and SS006-MW-53.

October 2009 Site Visit Observations

A site visit of Site OWS1845 was conducted in October 2009. A small central floor sump that was no longer in use was observed. No signs of an OWS were observed. Figures A4-OWS1845 and A5-OWS1845 show the current condition of the outside and inside of the building, respectively.

Building drawings for Building 1845 (dated 1988) were reviewed during the site visit. Photographs of these drawings are included in the supporting documentation. The drawings show the former OWS located inside Building 1845 along the building's north wall, approximately 20 to 25 feet west of the northeast corner. In addition, the drawings show an addition to the floor drain on the west end of the building. Notes recorded during the site visit indicate a feature labeled "sump/pit;" which is also shown on the 1988 drawing – inside the building along the south wall. Because the photographs taken during the site visit do not include the south sump, its location within the building could not be determined.

Target Analytes

A multi-chemical subsurface release target analyte list will be used for Site OWS1845, which includes DRO, GRO, RRO, VOCs, PAHs, metals (arsenic, barium, cadmium, chromium, lead, mercury, nickel, selenium, silver, and vanadium), and PCBs.

Potential Exposure Pathways and Receptors

Based on current and reasonably anticipated potential future land uses at Site OWS1845, potential human receptors and potentially complete exposure pathways include the following:

- **Excavation/Construction Workers:** Potential exposure to chemicals in soil to 15 feet bgs and shallow groundwater. Potentially complete routes of exposure to soil include incidental soil ingestion, dermal contact with soil, and inhalation of ambient vapors or dust generated from wind or during onsite excavation activities. Potentially complete routes of exposure to shallow groundwater include dermal contact with groundwater and inhalation of ambient vapors from groundwater.
- **Future Occupational Workers:** Potential exposure to chemicals in surface soil to 2 feet bgs. Potentially complete routes of exposure to surface soil include incidental soil ingestion, dermal contact with soil, and inhalation of ambient vapors or dust generated from wind. Vapor intrusion from VOCs in environmental media migrating into current or future occupational buildings is also a potentially complete exposure route.
- **Hypothetical Future Residents:** Potential exposure to chemicals in soil to 15 feet bgs and groundwater. Potentially complete routes of exposure to soil include incidental soil ingestion, dermal contact with soil, and inhalation of ambient vapors or dust generated from wind. Potentially complete routes of exposure to groundwater include ingestion, dermal contact, and inhalation of VOCs during showering or other household activities.

Vapor intrusion from VOCs in environmental media migrating into current or future residences is also a potentially complete exposure route.

Terrestrial ecological exposure pathways are considered incomplete at Site OWS1845 and the site will not be evaluated for terrestrial ecological risk. An aquatic ecological exposure pathway is unlikely to be complete because this site is greater than 1,000 feet away from the Yukon River. Data are being collected as part of the FSP for the 2010 Hydrogeologic Study to refine the understanding of the groundwater system at the FOL. This pathway may be evaluated further if subsurface contamination is found at the site and the data collected as part of the hydrogeological characterization suggest that there is a potential for site contamination to affect the Yukon River.

Conclusions and Recommendations for Further Investigation or Closure

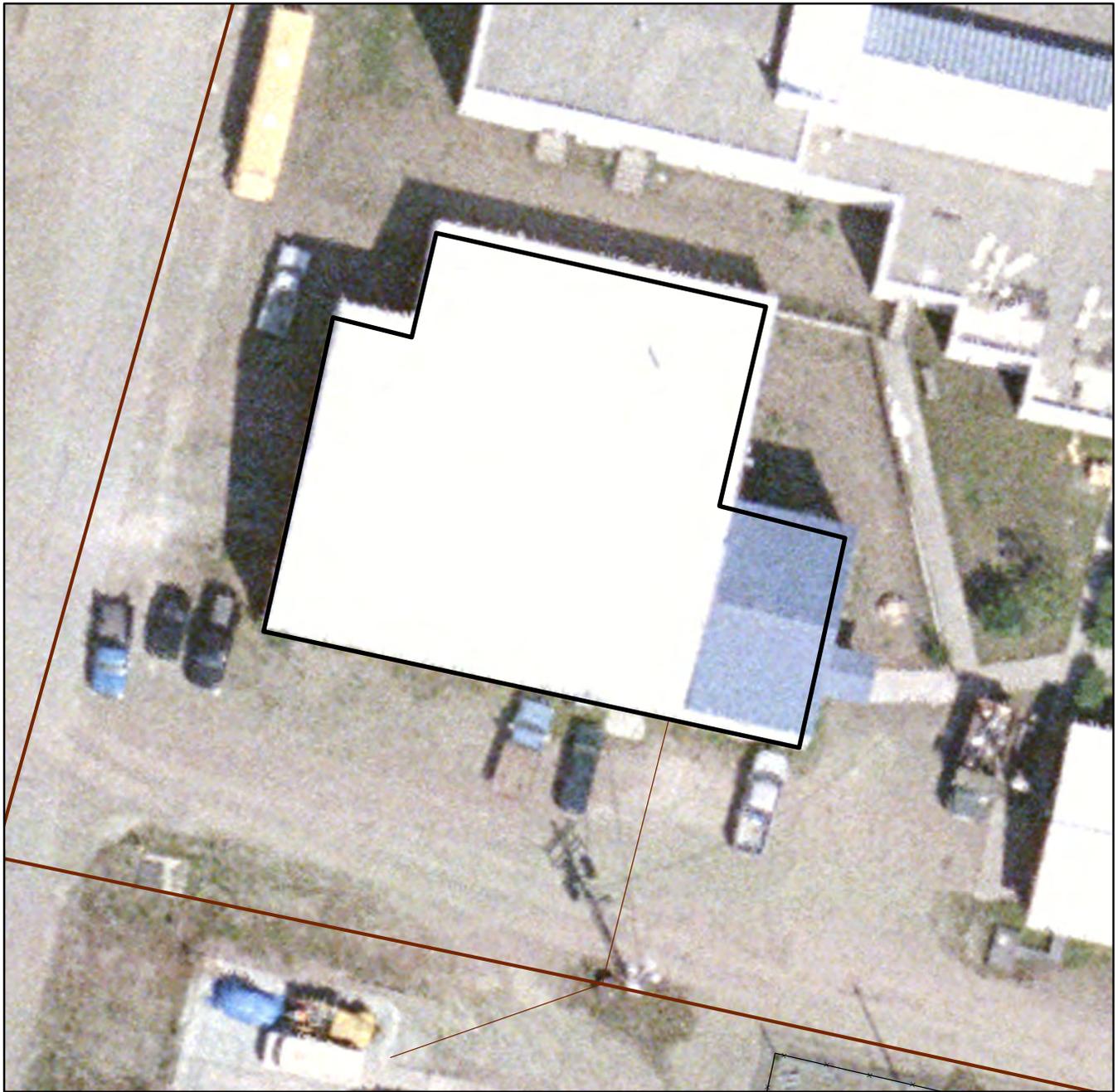
OWS 1845 was located at Building 1845, the Vehicle Maintenance Shop. Removal and closure documentation, including soil release verification samples, for an OWS is not available.

Recommendation: Site Inspection Sampling

Limited site inspection sampling is recommended to confirm the presence or absence of contamination from OWS 1845.

References

- Earth Tech, Inc. May 2004. *Final Galena Airport and Campion Air Station 2002 RPO Scoping Visit Field Activities Report*. Prepared for the United States Air Force, 611th Civil Engineer Squadron/Environmental Restoration Element (CES/CEVR), Elmendorf Air Force Base, Alaska.
- U.S. Air Force (USAF). February 2010. *Final Environmental Baseline Survey Air Force Property at Galena Airport, Alaska*.
- U. S. Air Force (USAF). June 1996. *Final Installation-Wide Environmental Baseline Survey Galena Alaska*. 611th Civil Engineer Squadron, Elmendorf AFB, Alaska.
- U.S. Air Force (USAF). March 1996. *Remedial Investigation Report - Galena Airport and Campion Air Station*.

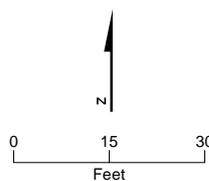
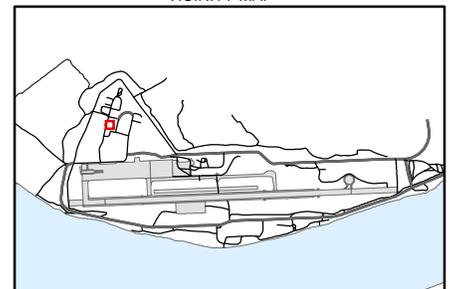


VICINITY MAP

LEGEND

-  OWS1845
-  Fence
-  Main Wastewater Line
-  Service Wastewater Line

Note:
 1. Aerial photography and CAD drawing file vector themes courtesy Alaska Department of Commerce, Community and Economic Development, Division of Community and Regional Affairs. July 7, 2009. Aerial photography pixel size 6-inch.



**FIGURE A1-OWS1845
 Site Layout**

Preliminary Assessment Report
 Former Galena Forward Operating Location, Alaska



LEGEND
 OWS1845

Notes:
 1. Photography Dated 9-4-1963, Georeferenced.
 2. Photography Dated 5-30-1978, Georeferenced.
 3. Imagery August, 2002. Pixel size 0.075 meters

VICINITY MAP

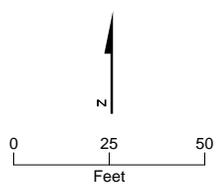
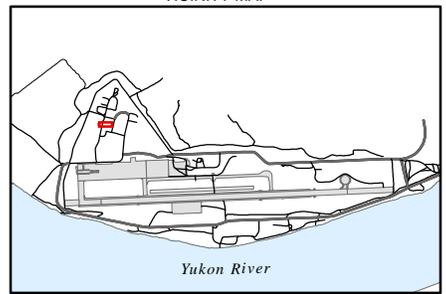
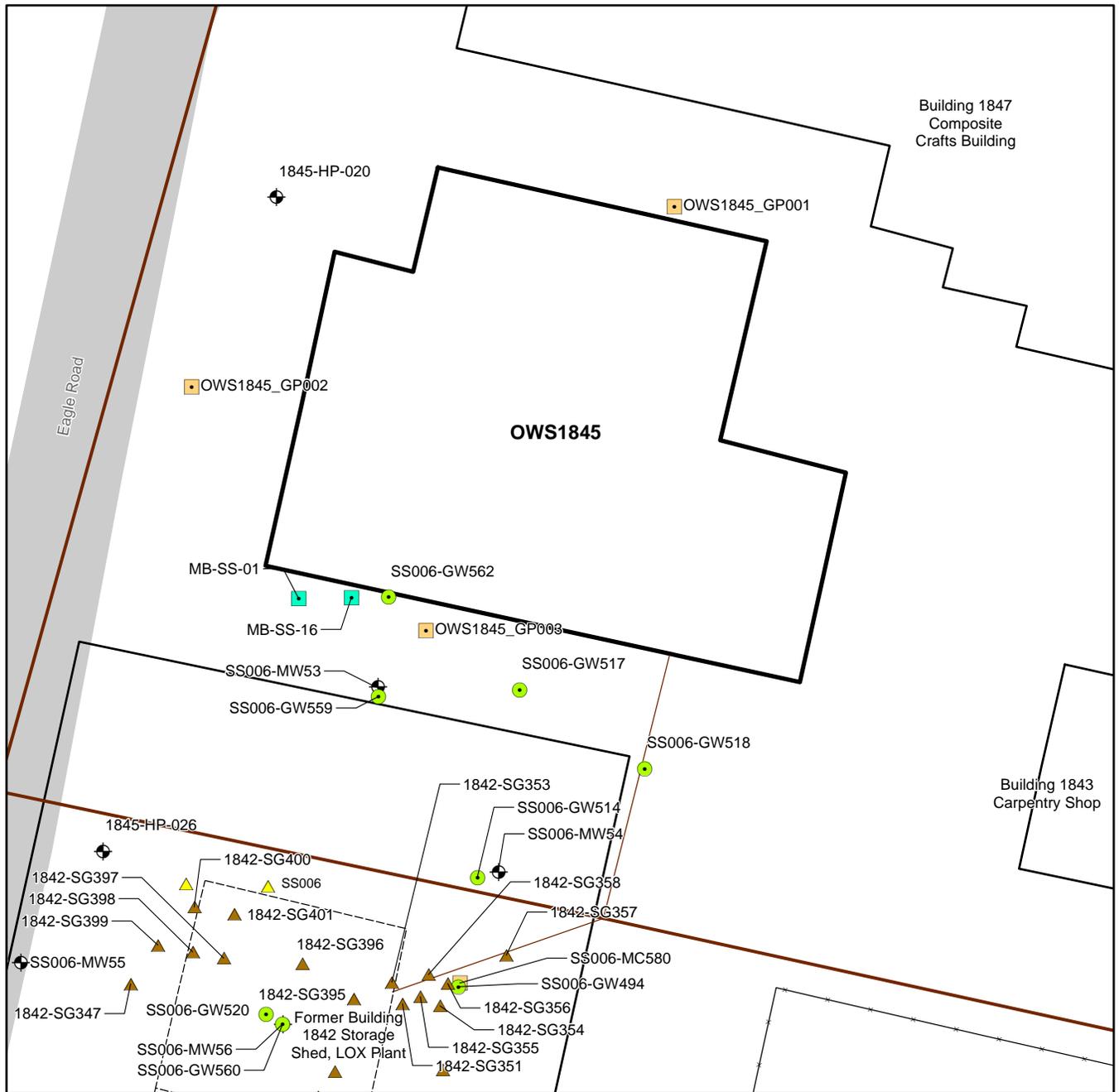


FIGURE A2-OWS1845
Historical Aerial Photography
 Preliminary Assessment Report
 Former Galena Forward Operating Location, Alaska



VICINITY MAP

LEGEND

- OWS1845
- Adjacent Site
- Approximate Location of Former Feature
- Structure
- Road
- Fence
- Main Wastewater Line
- Service Wastewater Line

Historical Sample Location

- Soil Boring
- Surface Soil Sample
- Hydro Punch
- Monitoring Well
- Soil Vapor Sample

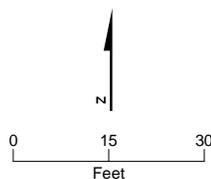
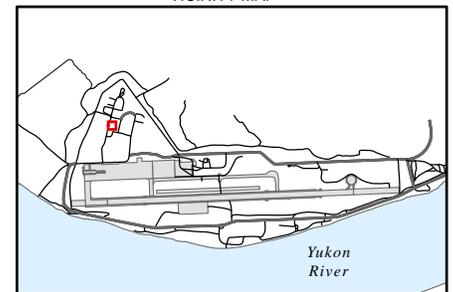


FIGURE A3-OWS1845
Historical Sample Locations

Preliminary Assessment Report
Former Galena Forward Operating Location, Alaska

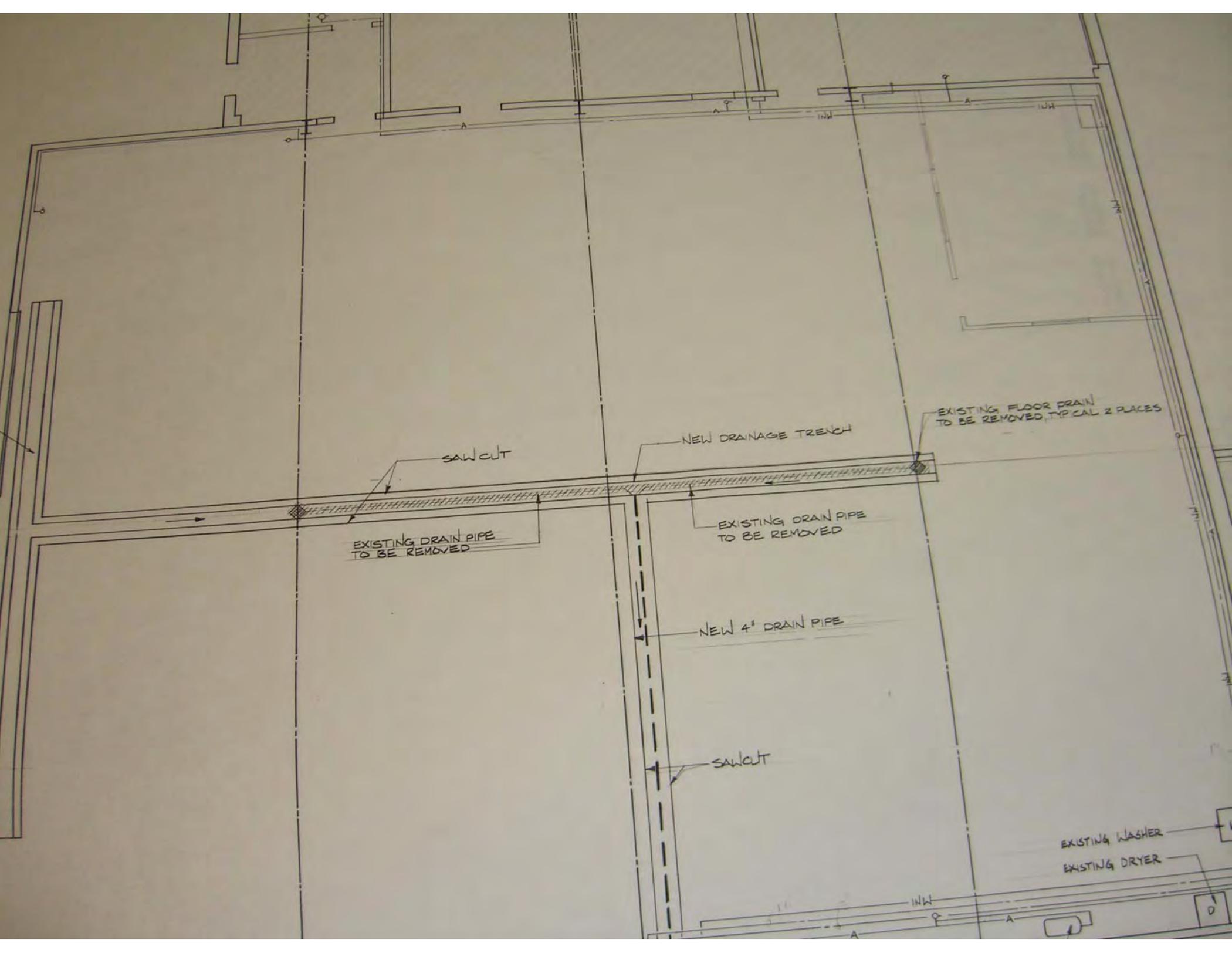


FIGURE A4-OWS1845
Outside of Building 1845, Vehicle Maintenance Shop, October 2009



FIGURE A5-OWS1845
Inside of Building 1845, Vehicle Maintenance Shop, October 2009

Supporting Documentation



EXISTING FLOOR DRAIN
TO BE REMOVED, TYPICAL 2 PLACES

NEW DRAINAGE TRENCH

SAWCUT

EXISTING DRAIN PIPE
TO BE REMOVED

EXISTING DRAIN PIPE
TO BE REMOVED

NEW 4" DRAIN PIPE

SAWCUT

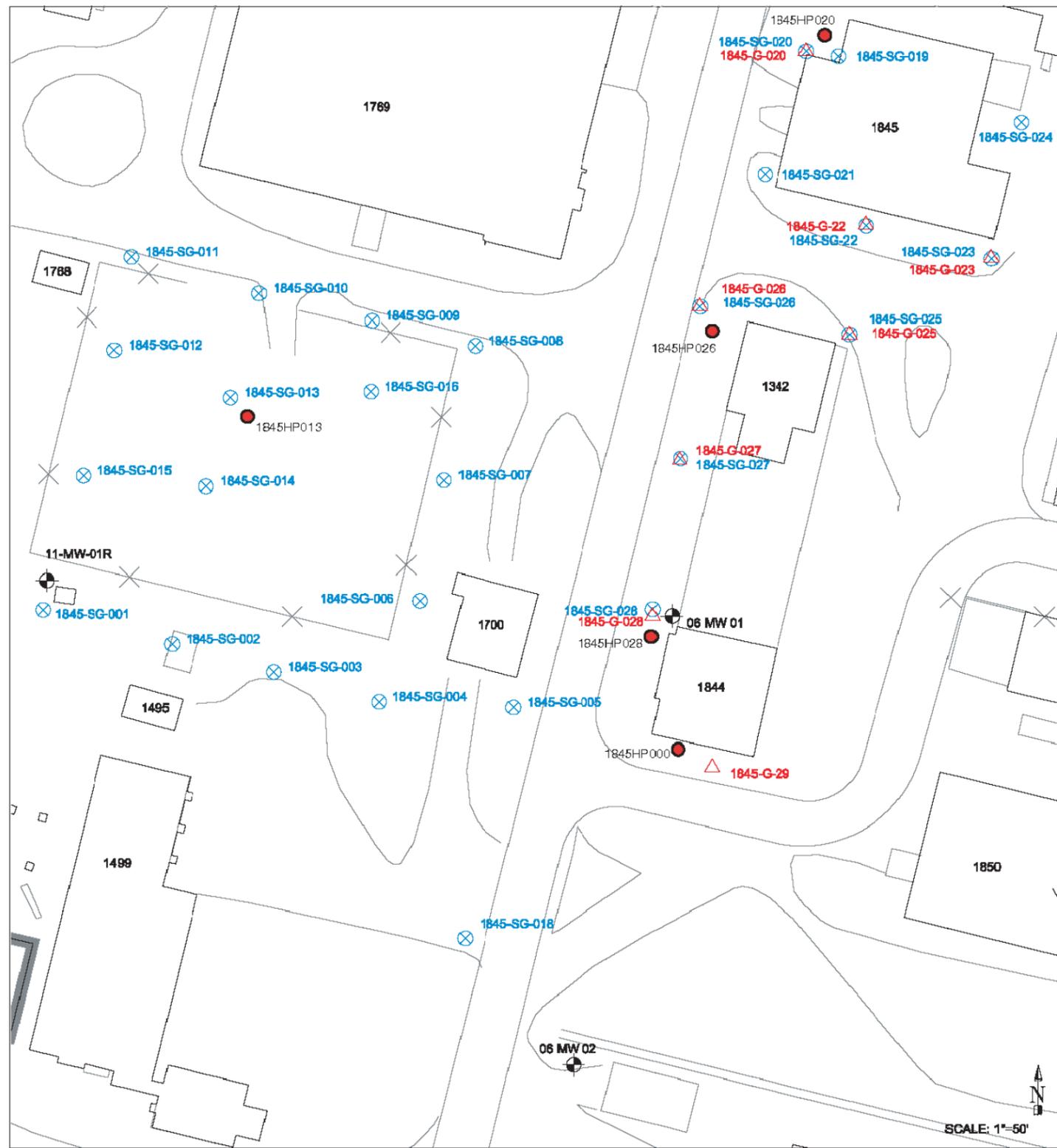
EXISTING WASHER
EXISTING DRYER

INW

A

A

D



Soil Gas Results at Building 1845 (SS006)

Sample ID	Date Sampled	Sample Depth (ft. bgs)	Sample Depth (ft. total)	O2 (%)	P O2 (%)	CH4 (%)	TVN (ppm/V)	Benzene (ppm/V)	TCE (ppm/V)	Toluene (ppm/V)	Ethylbenzene (ppm/V)	m,p-Xylene (ppm/V)	o-Xylene (ppm/V)
1845-SG-001E	21-Aug-02	5	136.32	13	8	0	680	ND	ND	ND	ND	ND	ND
1845-SG-001D	21-Aug-02	10	131.31	5.8	12.8	0	660	ND	ND	ND	ND	ND	ND
1845-SG-002S	21-Aug-02	5	137.98	8.8	12.9	0.1	660	ND	ND	ND	ND	ND	ND
1845-SG-002D	21-Aug-02	10	133.00	4.8	15.3	0.1	680	ND	ND	ND	ND	ND	ND
1845-SG-003S	21-Aug-02	5	139.03	11.5	8.7	0	600	ND	ND	ND	ND	ND	ND
1845-SG-003D	21-Aug-02	10	134.04	20.7	0.5	0	180	ND	ND	ND	ND	ND	ND
1845-SG-004S	21-Aug-02	5	141.54	18.4	2.7	0	560	ND	ND	ND	ND	ND	ND
1845-SG-004D	21-Aug-02	10	136.40	9	14.1	0	620	ND	ND	ND	ND	ND	ND
1845-SG-005S	21-Aug-02	10	138.37	11.4	10.3	0.3	960	ND	ND	ND	ND	ND	ND
1845-SG-005D	21-Aug-02	15	133.41	2.7	18.4	3.2	4200	ND	7.7	0.9	ND	ND	ND
1845-SG-006S	21-Aug-02	5	140.37	20.9	0.3	0.5	6120	15.7	30.4	23.8	2	6.6	1.6
1845-SG-006D	21-Aug-02	10	135.42	4.7	15.7	52.4	10460	61.8	73.4	97.1	2.3	10.9	2
1845-SG-007S	21-Aug-02	5	141.17	16.5	4.1	0	1200	ND	ND	ND	ND	ND	ND
1845-SG-007D	21-Aug-02	10	136.11	16.7	5.3	0.3	4540	ND	ND	ND	ND	ND	ND
1845-SG-008S	21-Aug-02	5	142.69	19.4	1.3	0	300	ND	ND	ND	ND	ND	ND
1845-SG-008D	21-Aug-02	10	137.63	17.7	3.4	0	420	ND	ND	ND	ND	ND	ND
1845-SG-009S	21-Aug-02	5	142.54	21	0	0	0	ND	ND	ND	ND	ND	ND
1845-SG-009D	21-Aug-02	10	137.54	17	3.6	0	580	ND	ND	ND	ND	ND	ND
1845-SG-010S	21-Aug-02	5	142.31	21.3	0	0.3	0	ND	ND	ND	ND	ND	ND
1845-SG-010D	21-Aug-02	10	137.31	21	0.1	0	360	ND	ND	ND	ND	ND	ND
1845-SG-0011S	21-Aug-02	5	141.22	20.1	0	0	0	ND	ND	ND	ND	ND	ND
1845-SG-0011D	21-Aug-02	10	136.22	20.1	0	0	0	ND	ND	ND	ND	ND	ND
1845-SG-0012S	21-Aug-02	5	139.99	12.9	6.9	0.1	880	ND	ND	ND	ND	ND	ND
1845-SG-0012D	21-Aug-02	10	134.98	15.5	4.3	0	540	ND	ND	ND	ND	ND	ND
1845-SG-0013S	21-Aug-02	5	140.62	21	0.1	0.1	80	ND	ND	ND	ND	ND	ND
1845-SG-0013D	21-Aug-02	10	135.62	16.8	5.1	NR	2200	ND	ND	ND	ND	ND	ND
1845-SG-0014S	21-Aug-02	5	139.67	20.8	0.3	0.1	660	ND	ND	ND	ND	ND	ND
1845-SG-0014D	21-Aug-02	10	134.67	9.6	11.7	0	620	ND	ND	ND	ND	ND	ND
1845-SG-0015S	21-Aug-02	5	138.85	13.3	5.4	0.1	540	ND	ND	ND	ND	ND	ND
1845-SG-0015D	21-Aug-02	10	133.85	11.9	6.4	0.1	640	ND	ND	ND	ND	ND	ND
1845-SG-0016S	21-Aug-02	5	140.51	9.1	11.2	0.5	7200	ND	ND	ND	ND	ND	ND
1845-SG-0016D	21-Aug-02	10	135.51	18.5	1.8	0	1240	ND	ND	ND	ND	ND	ND
1845-SG-0017S	21-Aug-02	5	140.51	21.1	0	0	0	ND	ND	ND	ND	ND	ND
1845-SG-0017D	21-Aug-02	10	135.51	20.2	0.6	0	620	ND	ND	ND	ND	ND	ND
1845-SG-0018S	21-Aug-02	5	140.34	21	0	0	0	ND	ND	ND	ND	ND	ND
1845-SG-0018D	21-Aug-02	10	135.34	10.8	9.7	0	600	ND	ND	ND	ND	ND	ND
1845-SG-0019S	21-Aug-02	5	140.51	21	NR	0	0	ND	ND	ND	ND	ND	ND
1845-SG-0019D	21-Aug-02	10	135.51	19.9	1.1	0.1	240	ND	ND	ND	ND	ND	ND
1845-SG-0020S	21-Aug-02	5	138.37	10.6	10.1	0	560	ND	ND	ND	ND	ND	ND
1845-SG-0020D	21-Aug-02	15	132.37	1.7	18.2	0.1	700	ND	ND	ND	ND	ND	ND
1845-SG-0021S	21-Aug-02	10	135.51	21.1	0	0	0	ND	ND	ND	ND	ND	ND
1845-SG-0021D	21-Aug-02	15	130.51	1.5	18.3	0.2	1440	ND	ND	ND	ND	ND	ND
1845-SG-0022S	21-Aug-02	10	138.78	21	0	0.1	0	ND	ND	ND	ND	ND	ND
1845-SG-0022D	21-Aug-02	15	133.78	2	13.1	0.3	2500	ND	ND	ND	ND	ND	ND
1845-SG-0023S	21-Aug-02	10	139.00	5.2	9.8	0	1080	ND	ND	ND	ND	ND	ND
1845-SG-0023D	21-Aug-02	15	134.00	4.5	12.9	0.1	1700	ND	ND	ND	ND	ND	ND
1845-SG-0024S	21-Aug-02	10	138.58	21	0	0.1	0	ND	ND	ND	ND	ND	ND
1845-SG-0024D	21-Aug-02	15	133.58	0.2	19.6	0	800	ND	ND	ND	ND	ND	ND
1845-SG-0025S	21-Aug-02	10	138.75	13.5	6.5	0.1	580	ND	ND	ND	ND	ND	ND
1845-SG-0025D	21-Aug-02	15	133.75	1.7	15.3	0	1580	ND	ND	ND	ND	ND	ND
1845-SG-0026S	21-Aug-02	10	138.17	20.5	0	0	0	ND	ND	ND	ND	ND	ND
1845-SG-0026D	21-Aug-02	15	133.17	3.3	17.1	0	640	ND	3.1	ND	ND	ND	ND
1845-SG-0027S	21-Aug-02	10	137.92	6.9	13.8	0	620	ND	5.5	ND	ND	ND	ND
1845-SG-0027D	21-Aug-02	15	132.92	19.4	1.4	0	320	ND	1.6	ND	ND	ND	ND
1845-SG-0028S	21-Aug-02	10	137.69	20.1	0.2	0	0	ND	3.1	ND	ND	ND	ND
1845-SG-0028D	21-Aug-02	15	132.69	3.1	14.6	0	660	ND	31.1	ND	ND	ND	ND

bgs - Below ground surface
msl - Mean sea level

GORE Sorber Data

Sample ID	BTEX, ug	BENZ, ug	TCE, ug
MDL=		0.03	0.02
1845-G-020	0.07	0.05	ND
1845-G-022	1.75	0.34	3.20
1845-G-023	0.07	ND	ND
1845-G-025	0.16	0.15	244.90
1845-G-026	0.22	0.14	124.27
1845-G-027	0.21	0.12	199.47
1845-G-028	1.10	0.43	346.60
1845-G-029	0.08	ND	ND

ND - Not detected

- Monitoring/Recovery Wells
- Soil Gas Sample Points
- GORE Sorber
- Microwells

Reproduced from 2002 RPO Report (USAF, 2004c)



611TH AIR SUPPORT GROUP
611TH CIVIL ENGINEER SQUADRON
ELMENDORF AFB, ALASKA

FIGURE 9 - 5
TCE AREA
SOIL GAS SURVEY 2002
ERP SITE SS006
GALENA AIRPORT, ALASKA

Liquid Fuel Systems

APPENDIX A

OAP/PADS/VP09

Old Abandoned Pipeline, Refueling Pads, and Valve Pit 9 – (Site ID OAP/PADS/VP09)

Site Location

Site OAP/PADS/VP09 is located primarily within the airfield and the cantonment “triangle.” Portions of old abandoned pipelines (OAPs) traverse the eastern portions of the FOL.

Site Characteristics

Site features are shown on Figure A1-OAP/PADS/VP09. The surface of Site OAP/PADS/VP09 is predominantly paved, with the exception of portions of the OAPs in the eastern portions of the FOL. The features of concern at the site are two OAPs, former refueling pads (PADS), and Valve Pit 9 (VP09).

Site Description and History

OAPs

The OAPs primarily consist of two underground steel pipelines: a 4-inch diameter pipeline built in 1952 that was used for diesel fuel and a 6-inch diameter pipeline built in 1962 that was used for other fuel products. The 4-inch diameter pipeline originates at the Barge Loading Area (BLA), runs approximately 1,600 feet north under the runway, continues predominantly due west, parallel to the north dike road, and terminates at VP02. The 1962 pipeline also originates at the BLA, runs approximately 1,200 feet north under the runway, continues predominantly due west parallel to the runway and northern apron, and terminates at VP02 (ECA, October 2009; AAC, January 1974; included in the supporting documentation).

Several VPs and expansion loops exist between VP02 and other areas of the Former Galena FOL. One 4-inch-diameter pipeline and one 6-inch-diameter pipeline continue from VP02 underground and terminate at Tanks 37 and 38 (located within ERP Site Million Gallon Hill). Three offshoots from these pipes supplied the power plant, the jet-propulsion fuel, grade 4 (JP-4) Truck Fill Stand, and the Truck Fill Stand near VP03. The other main extension loop runs northwest from VP02, and supplied the POL Tank Farm within Parcel W (AAC, January 1974, included in the supporting documentation). All aboveground sections of OAPs have been removed (North Wind, October 9, 2000). The third pipeline shown on Figure A1-OAP/PADS/VP09 is the active main fuel line for the FOL. The main jet-fuel pipeline originates at the BLA, trends west for approximately 6,500 feet, and turns north, finally terminating at Million Gallon Hill. This pipeline is being investigated as Site PIPE and is not a component of the OAP site.

PADS

The PADS site includes 12 former aircraft refueling pads. Six of these pads are located east of Building 1428, the former CAC. An additional six pads are located east of Building 1551,

the former Birchwood Hangar (Figure A1-OAP/PADS/VP09). Currently, there is no visible evidence of the pads.

Features interpreted to be the refueling pads are visible on an historical 1974 Liquid Fuel System drawing (AAC, January 1974; included in the supporting documentation) and on an aerial photograph from 1963 shown on Figure A2-OAP/PADS/VP09. The dimensions of the pads are approximately 50 feet by 50 feet. Aircraft tie-downs appear to be within each pad. Figure A3-OAP/PADS/VP09 shows one of these tie-down loops; the photo was taken during a site visit in April 2010. Within each group of six pads, two rows of three pads each cover an estimated area of 250 feet (east to west) by 200 feet (north to south). A fuel pipeline runs along the northern side of each row of pads. It is not clear where the fuel pipeline that served the pads connected with the 1962 abandoned pipeline or if it is connected to another abandoned pipeline east of the pad.

VP09

VP09, previously known as Wooden Valve Pit #4, is located north of the PADS site. VP09 is a concrete-vault-type structure primarily below grade, extending slightly above ground surface with access covers. Based on a Liquid Fuel System drawing (AAC, January 1974; included in the supporting documentation), VP09 had a 6-inch-diameter JP-4 pipeline and a 4-inch-diameter diesel pipeline that came into the western side of the VP from Million Gallon Hill and continued to the east to multiple VPs and truck fill stands. One 4-inch-diameter diesel line exited VP09 to the north and served two 12,000-gallon USTs (Tanks 48 and 49) at the power plant and two 25,000-gallon USTs (Tanks 46 and 47) at the Heat Plant. All piping at VP09 was steel and located underground.

Summary of Previous Investigations

Limited environmental sampling has been conducted that specifically targeted releases from Site OAP/PADS/VP09. During the 2008 field season, a soil, soil vapor, and grab groundwater investigation was conducted along the portion of the OAP related to the 1984 diesel release at the Southeast Runway Spill Site (ERP Site ST010). This portion of the OAP is being evaluated as part of the investigation of ERP Site ST010 (CH2M HILL, August 2010).

No additional sampling investigations specifically targeting releases associated with Site OAP/PADS/VP09 have been conducted, although soil and groundwater samples related to adjacent sites have been collected in the vicinity.

A geophysical survey of a portion of the PADS site was completed in 2009, and is described below.

Geophysical Surveys (2009)

In July 2009, ECA completed a geophysical survey using GPR to confirm the locations of the refueling pads east of Building 1428 and the former Building 1551 (ECA, October 2009). ECA identified GPR anomalies that were consistent with the presence of the following features (ECA, October 2009):

B-1428 Fuel Stands (Section 5.9)

- One north-south trending pipeline at a depth of 1.5 feet bgs
- Two east-west trending pipelines at a depth of 2.5 to 3 feet bgs

Fuel Stands (Section 5.11)

- Two north-south trending pipelines at depths of 3.5 and 5.5 feet bgs
- Six east-west trending pipelines, one at a depth of 2 feet bgs and five at a depth of 3 to 4.5 feet bgs
- Eight pipeline vaults at a depth of 0.5 foot bgs

Birchwood Hanger (Section 5.12)

- One north-south trending wastewater line at a depth of 5 feet bgs
- Two east-west trending wastewater laterals at a depth of 5 feet bgs
- One north-south trending vault at a depth of 1.5 feet bgs.

The locations of these pipes and vaults overlain on the 1963 aerial photograph are shown on Figure A4-OAP/PADS/VP09.

October 2009 Site Visit Observations

An inspection of Site OAP/PADS/VP09 was conducted in October 2009. The surface of the site was observed to be pavement and gravel. No surface staining or petroleum odors were observed.

Target Analytes

Site OAP/PADS/VP09 is associated with petroleum distribution. Potential target analytes for diesel and jet fuel are GRO, DRO, BTEX, and PAHs.

Potential Exposure Pathways and Receptors

Based on current and reasonably anticipated potential future land uses at Site OAP/PADS/VP09, potential human receptors and potentially complete exposure pathways include the following:

- **Excavation/Construction Workers:** Potential exposure to chemicals in soil to 15 feet bgs and shallow groundwater. Potentially complete routes of exposure to soil include incidental soil ingestion, dermal contact with soil, and inhalation of ambient vapors or dust generated from wind or during onsite excavation activities. Potentially complete routes of exposure to shallow groundwater include dermal contact with groundwater and inhalation of ambient vapors from groundwater.
- **Future Occupational Workers:** Potential exposure to chemicals in surface soil to 2 feet bgs. Potentially complete routes of exposure to surface soil include incidental soil ingestion, dermal contact with soil, and inhalation of ambient vapors or dust generated from wind. Vapor intrusion from VOCs in environmental media migrating into current or future occupational buildings is also a potentially complete exposure route.

- **Hypothetical Future Residents:** Potential exposure to chemicals in soil to 15 feet bgs and groundwater. Potentially complete routes of exposure to soil include incidental soil ingestion, dermal contact with soil, and inhalation of ambient vapors or dust generated from wind. Potentially complete routes of exposure to groundwater include ingestion, dermal contact, and inhalation of VOCs during showering or other household activities. Vapor intrusion from VOCs in environmental media migrating into current or future residences is also a potentially complete exposure route.

The site contains both developed and undeveloped areas with buildings, gravel, paved surfaces, and a small amount of ruderal (weedy) vegetation that provides no viable habitat. Portions of the site contain short grass and forbs that provide limited habitat. Terrestrial ecological exposure pathways are incomplete at Site OAP/PADS/VP09, and the site will not be evaluated for terrestrial ecological risk.

Because portions of Site OAP/PADS/VP09 are within 1,000 feet of the Yukon River, an aquatic ecological pathway is potentially complete at the site, particularly if target analytes are present in groundwater that may daylight downgradient. Data are being collected as part of the FSP for the 2010 Hydrogeologic Study to refine the understanding of the groundwater system at the FOL. This pathway may be evaluated further if subsurface contamination is found at the site and the data collected as part of the hydrogeological characterization suggest that there is a potential for site contamination to affect the Yukon River.

Conclusions

Site OAP/PADS/VP09 is associated with petroleum distribution. Fuel may have leaked from subsurface piping or may have been spilled on the ground surface during refueling activities at the pads. No sampling investigations associated with Site OAP/PADS/VP09 have been conducted.

Recommendation: Site Inspection

Limited site inspection sampling is recommended to confirm the presence or absence of fuel-related contamination in soil and groundwater at Site OAP/PADS/VP09. Excavations are currently being planned as part of remedial actions at ERP Sites SS014/SS017/SS021 and SS016 (CH2M HILL, August 2010). It is also recommended that the integrity of potential residual contents of OAP be determined via these activities.

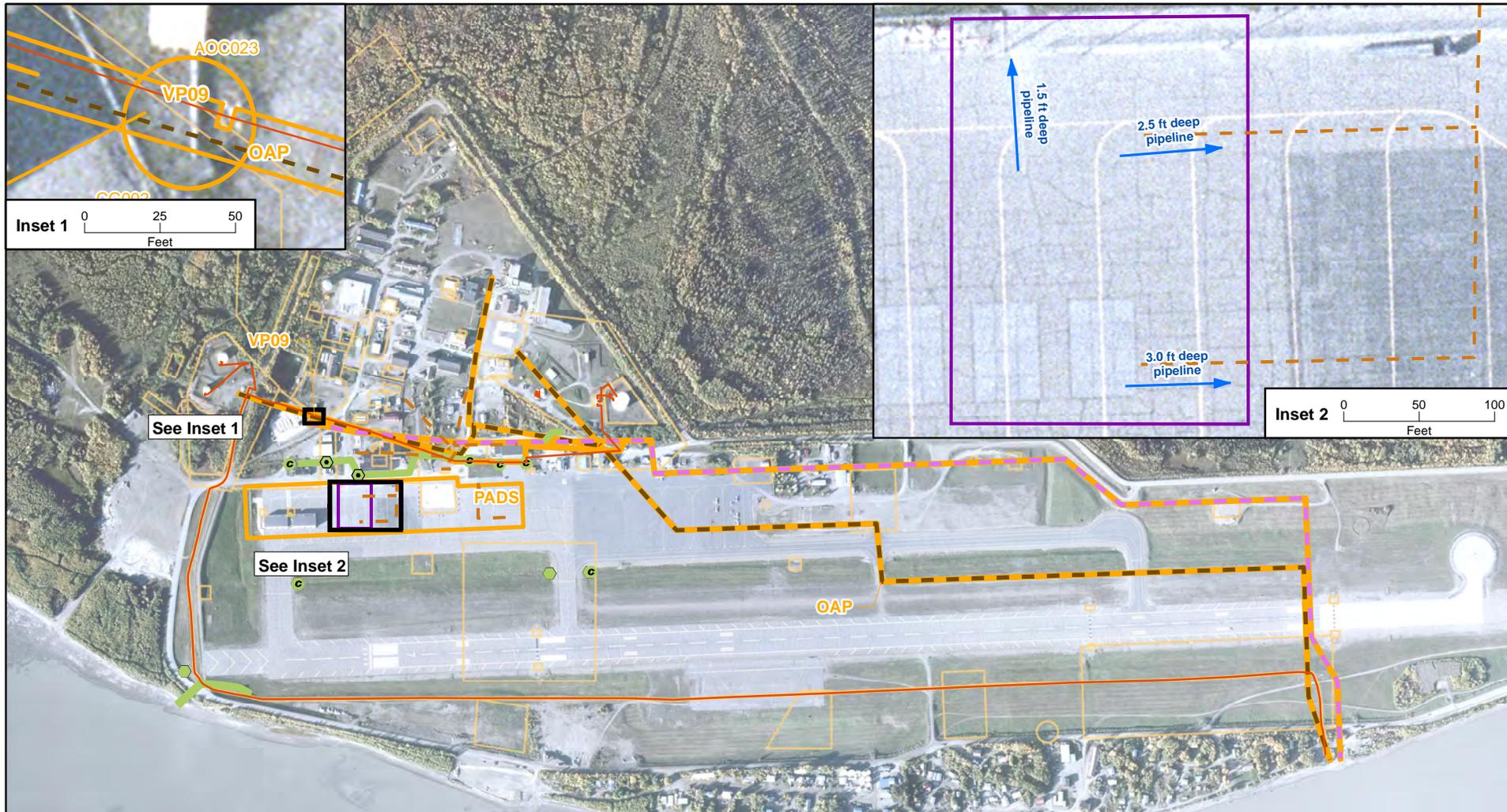
References

Alaskan Air Command (AAC). January 1974. Master Plan Liquid Fuel System, Galena Airport. Tab G-7, Sheet 2 of 2.

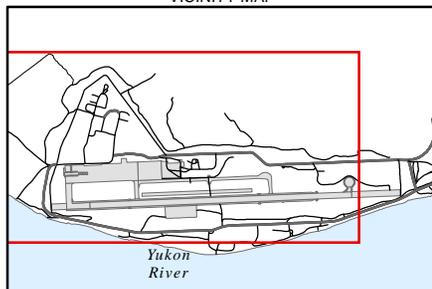
CH2M HILL. August 2010. *Work Plan for Site Inspection, Remedial Investigation, and Site Characterization; Former Galena Forward Operating Location, Alaska*. Final. Prepared for Air Force Center for Engineering and the Environment (AFCEE).

Environmental Compliance Associates, LLC (ECA). October 2009. *Galena Air Force Base Geophysical Surveys.*

North Wind Environmental Inc. (North Wind). October 9, 2000. *Report of Sample Analysis for Galena Pipeline Removal Project.*



VICINITY MAP



LEGEND

- | | | | |
|--|----------------------------|--|-----------------------|
| | OAP/PADS/VP09 | | Main Storm Sewer Line |
| | Adjacent Site | | Junction Box |
| | Main Fuel Line (Site PIPE) | | Manhole |
| | Abandoned PADS Pipeline | | Drop Inlet |
| | Abandoned Fuel Line (1952) | | Discharge |
| | Abandoned Fuel Line (1962) | | Culvert |
| | Geophysical Survey Feature | | |
| | Geophysical Survey Limit | | |

Note:
1. Imagery September 4, 2009. Pixel size 0.25 meters.

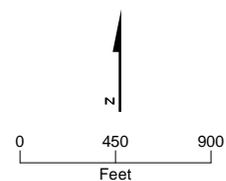
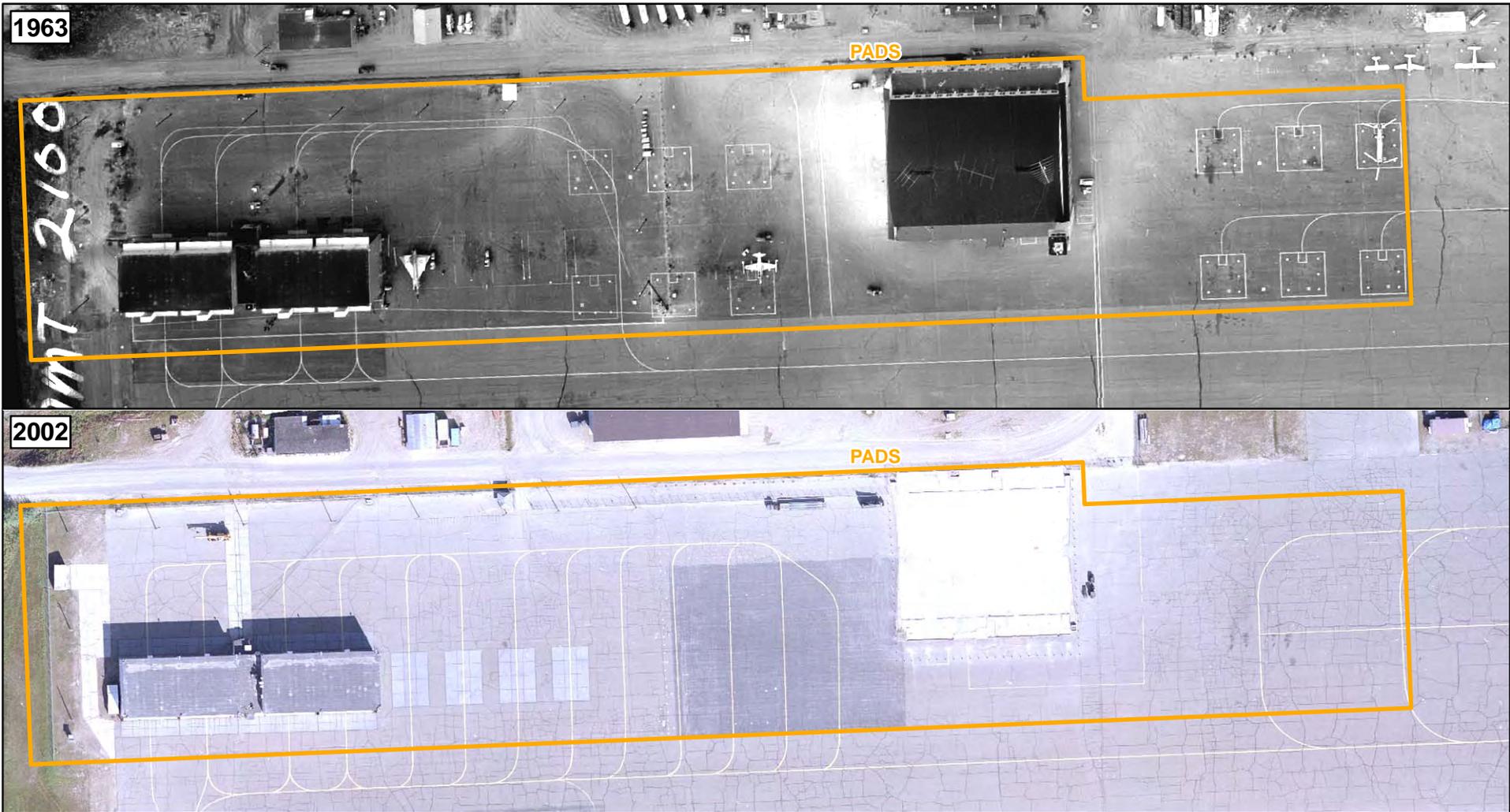
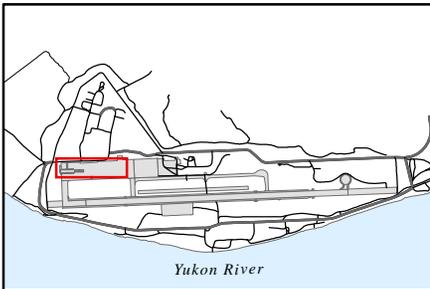


FIGURE A1 OAP/PADS/VP09 Site Layout

Preliminary Assessment Report
Former Galena Forward Operating Location, Alaska



VICINITY MAP

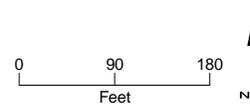


LEGEND

 PADS

Notes:

1. Photography Dated 9-4-1963, Georeferenced.
2. Imagery August, 2002. Pixel size 0.075 meters.



**FIGURE A2-PADS
Historical Aerial Photography**

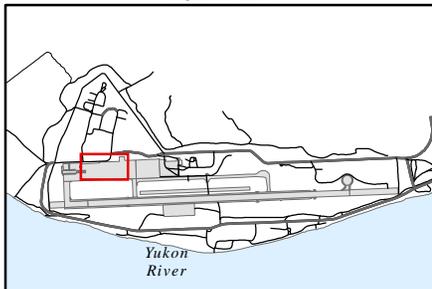
Preliminary Assessment Report
Former Galena Forward Operating Location, Alaska



Figure A3-OAP/PADS/VP09
Photo of Tie-Back Loop within a Former Refueling Pad



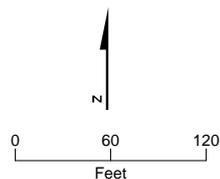
VICINITY MAP



LEGEND

- OAP/PADS/VP09
- Adjacent Site
- Abandoned Fuel Line (1952)
- Abandoned Fuel Line (1962)
- Abandoned Fuel Line
- Main Fuel Line
- Service Fuel Line
- Defueling Fuel Line
- Main Storm Sewer Line
- Junction Box
- ⊕ Manhole
- ⊙ Drop Inlet
- ⊗ Discharge
- ⊚ Culvert
- ➔ Geophysical Survey Feature
- Vaults

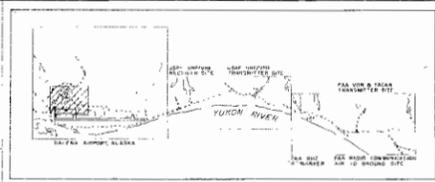
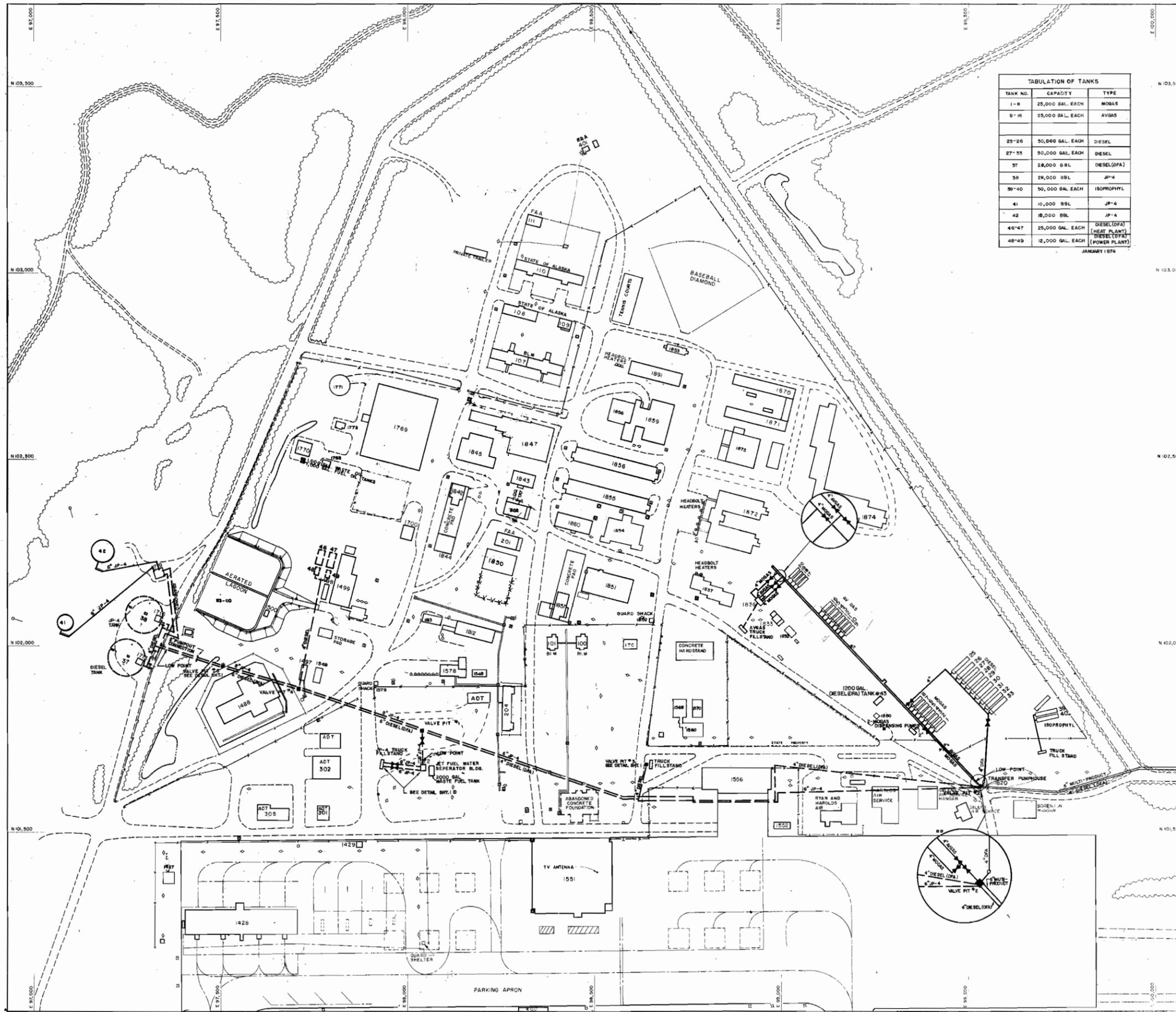
Note:
1. Photography dated 9-4-1963, georeferenced.



**FIGURE A4-OAP/PADS/VP09
Geophysical Survey Features**

Preliminary Assessment Report
Former Galena Forward Operating Location, Alaska

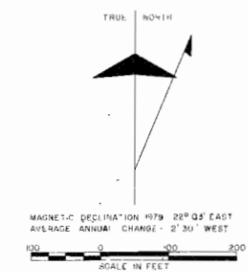
Supporting Documentation



INDEX MAP
SCALE IN FEET
LEGEND

- 4" SIZE ABOVEGROUND FUEL LINE
- UNDERGROUND FUEL LINE
- GATE VALVE
- ABOVEGROUND TANK
- UNDERGROUND TANK
- DFA DIESEL FUEL-ARTC
- FLANGE
- VALVE PIT

- NOTES
- TANKS HAVE ONE GATE VALVE EACH.
 - LINE IS STEEL.
 - TANKS 39 & 40 HAVE 2EA. BERKELEY 25HP 1500RPM TURBINE PUMPS/DEACTIVATED.



ORIGIN OF COORDINATES SEE TAB C-1 SHEET 1
ELEVATION DATUM SEE TAB C-1 SHEET 1
AIRFIELD ELEVATION 420 FEET (132 FEET PER USNM "GALENA")
INSTALLATION NO. 112PM

REV.	DATE	DESCRIPTION	INITIAL
1		DESIGN UPDATED	DAB
2		DESIGN UPDATED	DAS
3		DESIGN UPDATED	KAM
4		DESIGN UPDATED	KAM

DEPARTMENT OF THE AIR FORCE
DIRECTORATE OF CIVIL ENGINEERING DCE/PAW WASHINGTON, D.C.

ALASKAN AIR COMMAND
MASTER PLAN
LIQUID FUEL SYSTEM
GALENA AIRPORT, ALASKA

SCALE: 1" = 100' DATE: JANUARY 1974 188 G-7
MASTER PLAN DIRECTIVE 83-1
U.S. ARMY ENGINEER DISTRICT, ALASKA ANCHORAGE, ALASKA SHEET: 2 OF 2

APPENDIX A

PIPE

New 1-Mile Pipeline (Site ID PIPE)

Site Location

Site PIPE originates at the BLA at the eastern end of Old Town Galena. The underground pipeline runs east to west just south of the runway, turns north at the western end of the runway, and terminates at Tanks 41 and 42 on Million Gallon Hill. From this location, a pipeline runs across the airport cantonment area to Tank 44, Building 1499, and filling stands near Building 1572.

Site Characteristics

Site features are shown on Figure A1-PIPE. The pipeline consists of two mains, one for diesel fuel (assumed to be arctic diesel) and one for jet fuel (both JP-4 and JP-8 were used at the Former Galena FOL) (USAF, 1960).

Site Description and History

Site PIPE is an existing, underground, steel liquid fuel pipeline system. The site consists of 22,382 linear feet of pipeline installed in 1953. Although three previous releases are associated with Site PIPE, contamination from previous releases has been cleaned up or is currently being addressed under ERP Sites ST003 and ST010.

In the mid 1960s, the pipeline leaked an estimated 20,000 to 30,000 gallons of diesel fuel at the BLA (USAF, February 2010). Contamination from the pipeline leak in this area was addressed under ERP Site ST003 (POL Fuel Line Leak). ERP Site ST003 has been closed (ADEC, November 2005).

A release of diesel fuel from the pipeline reportedly occurred in an area south of the airstrip in 1984. Contamination from the pipeline release in this area is currently being addressed under ERP Site ST010.

In April 2006, during the installation of a test well north of the air commercial service area, the pipeline was nicked and 47 gallons of JP-8 were released (USAF, February 2010). In response to the spill, the area around the pipeline was excavated and contaminated soil was removed, and permanent repair to the pipeline was conducted.

The pipeline was pressure tested in 2008 and no signs of leakage were identified (USAF, February 2010).

Summary of Previous Investigations

No previous investigations have been conducted at Site PIPE. Investigations associated with previous releases were conducted at ERP Site ST003 and ERP Site ST010. Investigations associated with abandoned fuel pipelines that may have been closed without proper documentation are addressed in Appendix A, Site OAP/PADS/VP09.

October 2009 Site Visit Observations

No inspection of Site PIPE was conducted in October 2009. However, historical aerial photographs from 1985 and 2002 are shown in Figure A2-PIPE, and a photograph of Site PIPE from the 2008 Bill of Sale is provided in Figure A3-PIPE.

Target Analytes

Because a release has not occurred from Site PIPE, no target analytes are present at the site.

Potential Exposure Pathways and Receptors

Because a release has not occurred from Site PIPE, media at the site have not been impacted. Therefore, no complete human health or ecological exposure pathways exist at the site.

Conclusions

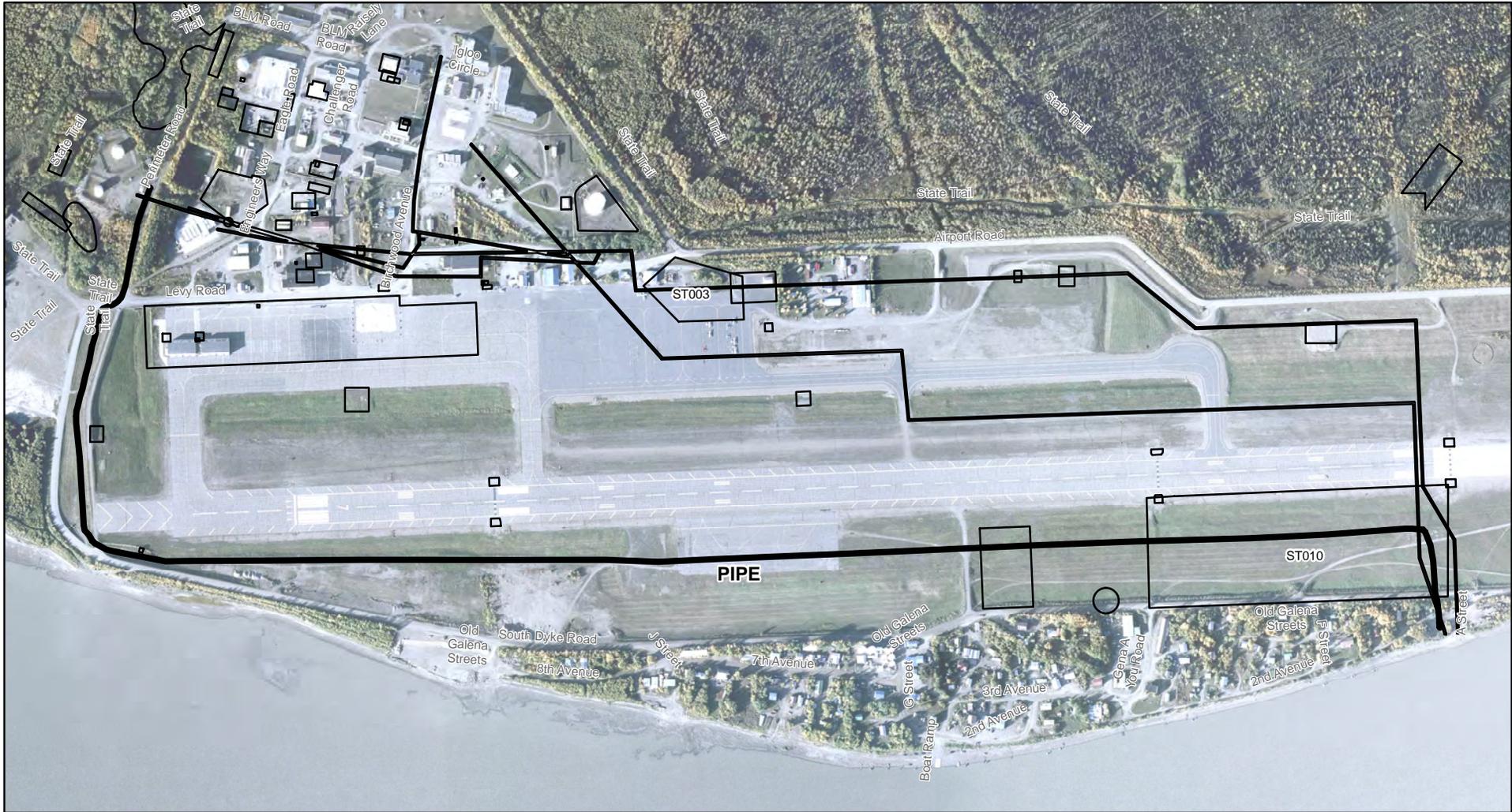
Site PIPE consists of 22,382 linear feet of pipeline including two mains, one for diesel fuel and one for jet fuel. The operational pipeline was pressure tested in 2008 and no signs of leakage were identified. Contamination from previous releases has been cleaned up or is currently being addressed under ERP Sites ST003 and ST010.

Recommendation: "Non-Site"

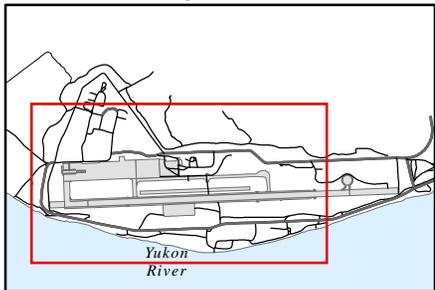
Because Site PIPE passed a recent leak test, and is not the source of any releases (excluding the releases being addressed under ERP Sites ST003 and ST010), a designation of Site PIPE as a "Non-Site" is recommended.

References

- Alaska Department of Environmental Conservation (ADEC). November 8, 2005. "Comments on the Draft Final *Proposed Plan, Closure or NFRAP of Four ERP Sites at the Galena Airport, Alaska*".
- U.S. Air Force (USAF). February 2010. *Final Environmental Baseline Survey Air Force Property at Galena Airport, Alaska*.
- U.S. Air Force (USAF). 1960. Air Force Form 1431, Real Property Accountable Record-Systems-Liquid Fuel Pipeline.
- U.S. Air Force (USAF) and the City of Galena. September 30, 2008. Bill of Sale for Buildings and Facilities at Galena, Alaska.



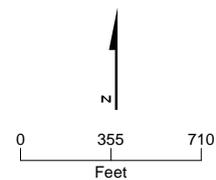
VICINITY MAP



LEGEND

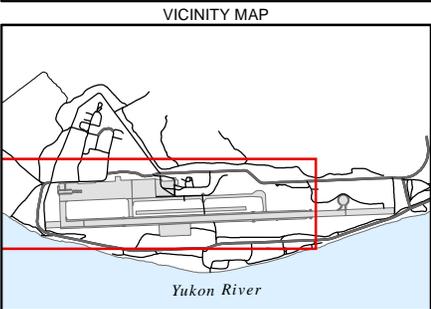
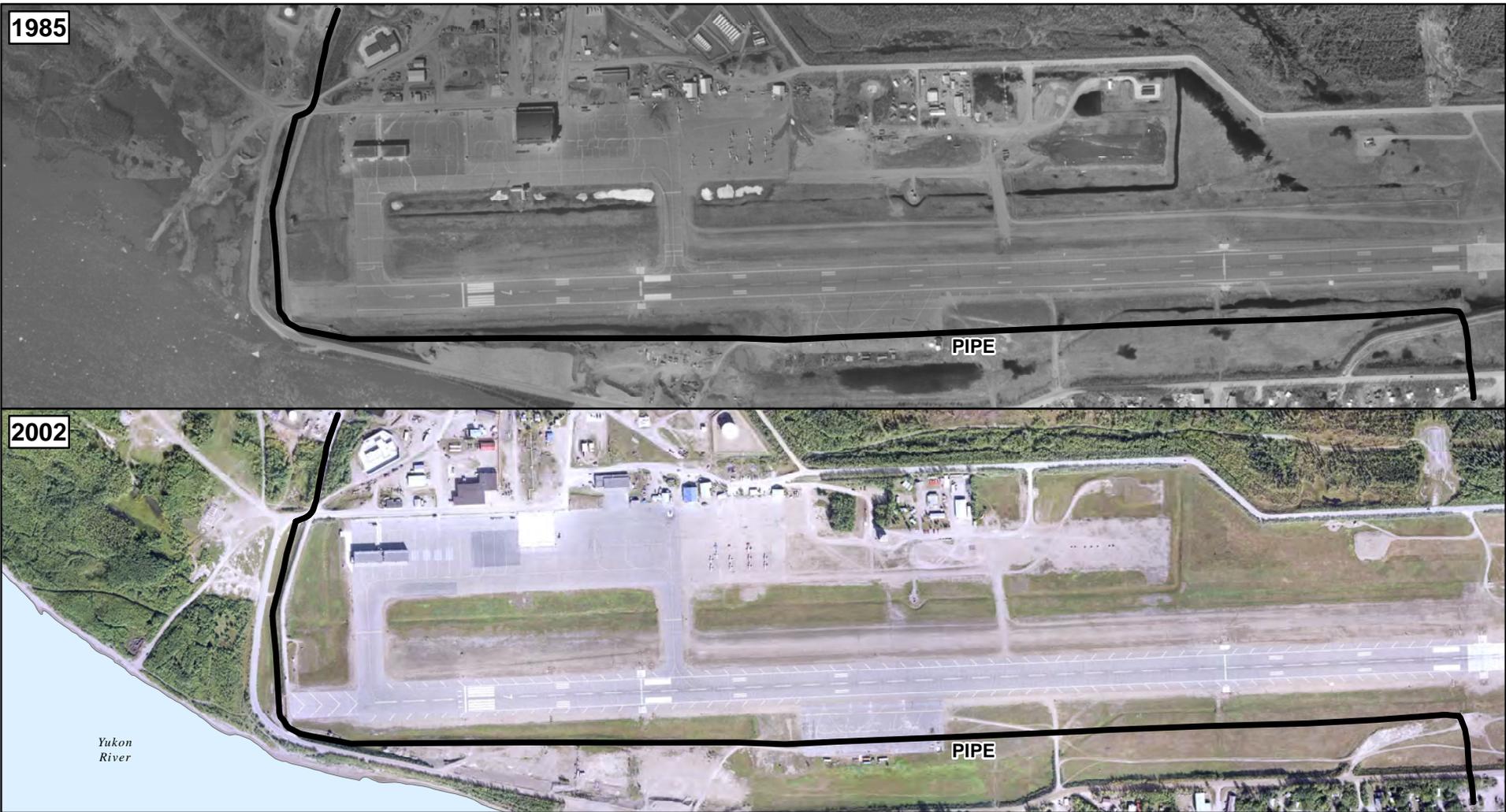
- PIPE
- Adjacent Site

Note:
1. Imagery September 4, 2009. Pixel size 0.25 meters



**FIGURE A1-PIPE
Site Layout**

Preliminary Assessment Report
Former Galena Forward Operating Location, Alaska



LEGEND
 PIPE

Notes:
 1. Photography Dated 1985, Georeferenced.
 2. Imagery August, 2002. Pixel size 0.075 meters.

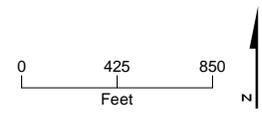


FIGURE A2-PIPE
Historical Aerial Photography
 Preliminary Assessment Report
 Former Galena Forward Operating Location, Alaska
CH2MHILL



FIGURE A3-PIPE
Site Location as Shown in the Bill of Sale
Source: USAF and the City of Galena, September 30, 2008, Attachment A-3

Navigation Aids

APPENDIX A

ILS8

Instrument Landing System Navigational Aids (Site ID ILS8)

Site Location

Site ILS8 is located northwest of the western end of Runway 7.

Site Characteristics

Site features are shown on Figure A1-ILS8. Site ILS8 consists of an open vegetated area with short grasses and forbs surrounding the former Instrument Landing System (ILS). The features of concern at the site are the former ILS and potential supporting equipment.

Site Description and History

The USAF operated the ILS to aid landing at the Former Galena FOL. In general, the ILS consisted of a course indicator (called a localizer) that showed whether the plane was to the left or right of the runway centerline, a glide path or landing beam to show if the plane was above or below the glide slope, and two marker beacons for showing the progress of approach to the landing field. Equipment in the airplane allowed the pilot to receive the information transmitted from the ILS (HALA, 2003).

The installation date of the ILS system was not available in the records reviewed, but the ILS is visible in the photo from 1963 on Figure A2-ILS8. When operations of airfield systems were turned over to the FAA in 2007, the ILS was removed.

During a phone interview on January 19, 2010, Mr. John Rose, who was formerly responsible for the electrical distribution system at Galena starting in 1983, indicated that power was supplied to navigation aids on the airfield through underground power cables. Because power was supplied to these areas from a central source, there is no reason to suspect the prior existence of fuel tanks at former navigational aid stations (Rose, January 19, 2010). The ILS was the one airfield navigation aid inside the perimeter dike that was supplied power by a pole-mounted transformer (Rose, January 19, 2010). No records indicate that any back-up power generator or fuel storage was associated with the ILS.

Historical aerial photographs of the site, dated 1963, 1985, and 2002, are shown on Figure A2-ILS8. The ILS can be seen on all three photographs.

Summary of Previous Investigations

No investigations have been conducted or samples collected at Site ILS8.

October 2009 Site Visit Observations

An inspection was conducted at Site ILS8 in October 2009. No visual signs of contamination were observed. The site was observed to be an open area vegetated with short grasses and forbs as shown in Figure A3-ILS8.

Target Analytes

There is no evidence of historic or current sources of contamination at Site ILS8. Therefore, no target analytes are present at the site.

Potential Exposure Pathways and Receptors

Media at the site have not been impacted from the ILS. Therefore, no complete human health or ecological exposure pathways exist at the site.

Conclusions

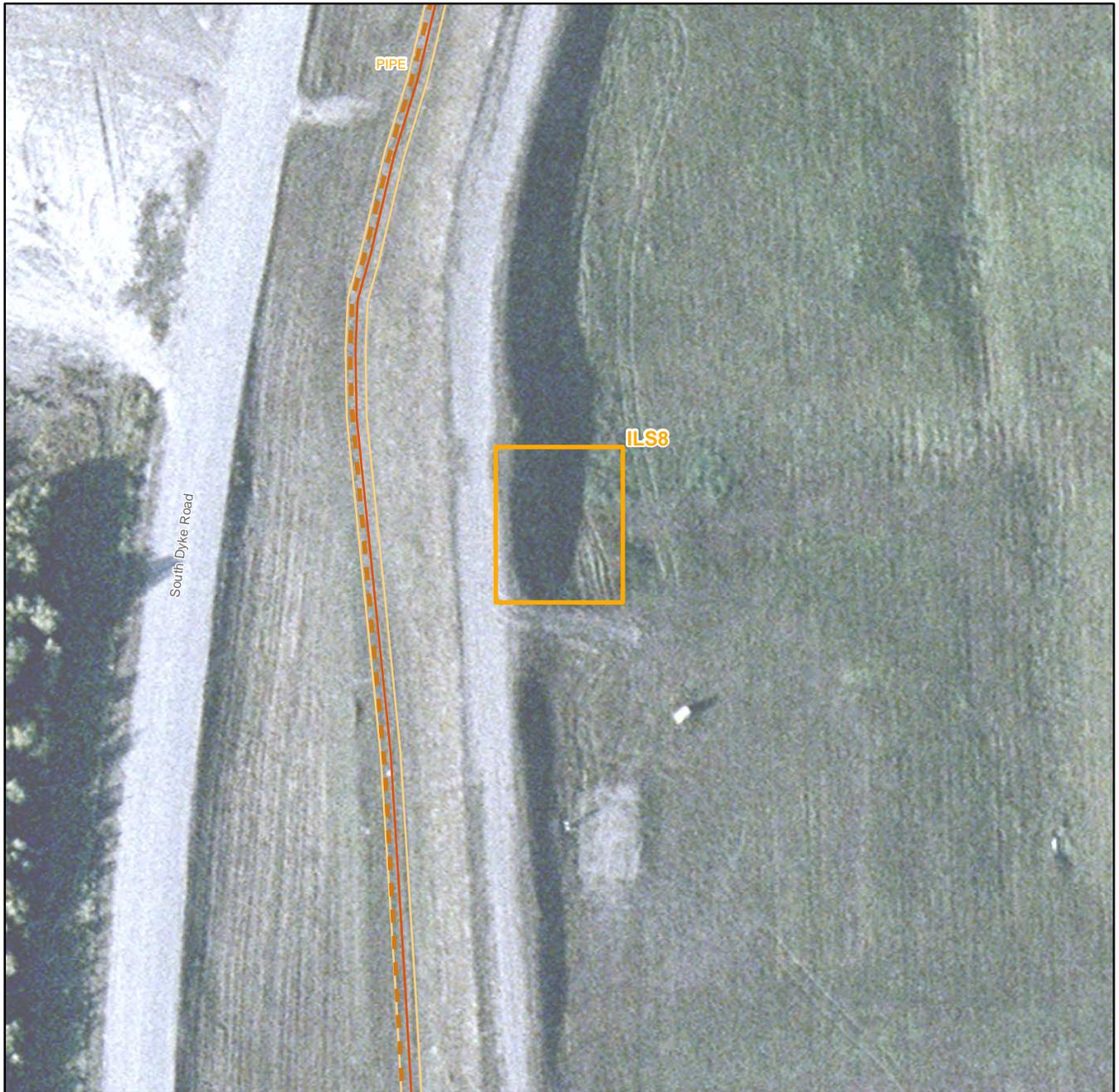
The USAF operated the ILS to aid landing at the Former Galena FOL. No sources of contamination were associated with the former ILS. The ILS was supplied power by a pole-mounted transformer. No records indicate that any back-up power generator or fuel storage was associated with the ILS.

Recommendation: "Non-Site"

Because there is no evidence of historic or current sources of contamination at Site ILS8, designation of Site ILS8 as a "Non-Site" is recommended.

References

- History of Aircraft Landing Aids (HALA). 2003.
http://www.centennialofflight.gov/essay/Government_Role/landing_nav/POL14.htm. Accessed, February 25, 2010.
- Rose, John. January 19, 2010. John Rose, High Voltage Electrical Supervisor, 611th Civil Engineer Squadron (CES). Personal communication with Vivian Tokar/CH2M HILL.

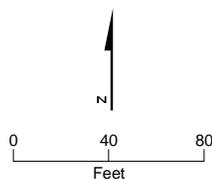
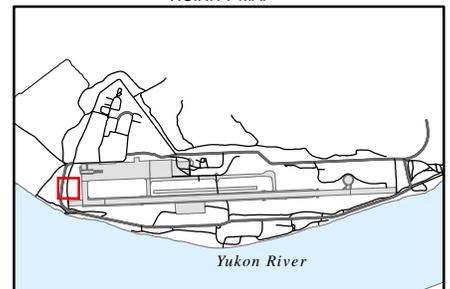


VICINITY MAP

LEGEND

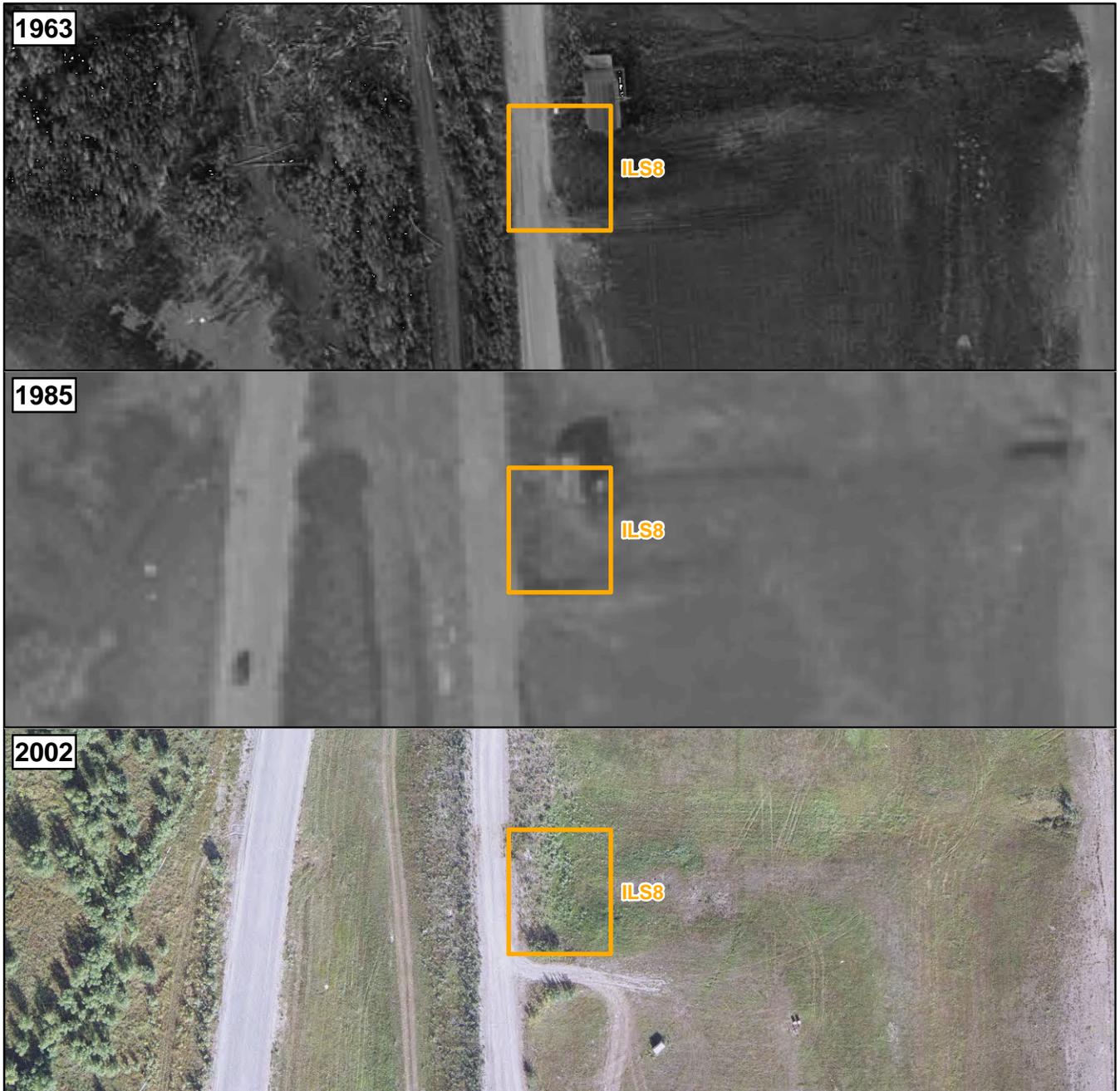
-  ILS8
-  Adjacent Site
-  Main Fuel Line
-  Abandoned Fuel Line

Note:
1. Imagery September 4, 2009. Pixel size 0.25 meters.



**FIGURE A1-ILS8
Site Layout**

Preliminary Assessment Report
Former Galena Forward Operating Location, Alaska



LEGEND
 ILS8

Notes:
 1. Photography Dated 9-4-1963, Georeferenced.
 2. Photography Dated 1985, Georeferenced.
 3. Imagery August, 2002. Pixel size 0.075 meters

VICINITY MAP

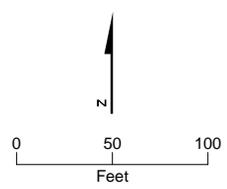
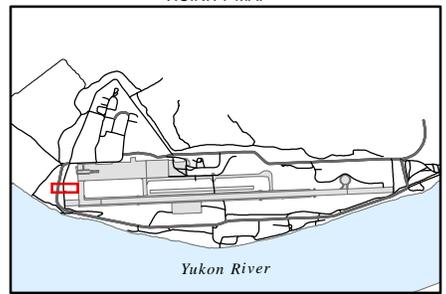


FIGURE A2-ILS8
Historical Aerial Photography
 Preliminary Assessment Report
 Former Galena Forward Operating Location, Alaska



FIGURE A3-ILS8
Looking North

APPENDIX A

TACAN1

Tactical Air Navigation 1 (Site ID TACAN1)

Site Location

Site TACAN1 is the former location of a tactical air navigation (TACAN) system that was approximately 200 feet south of the runway's midpoint. Site TACAN1 is also identified as a 62,500-square-foot area labeled Parcel B in the 2008 Galena Land Occupancy Drawings maintained by AKDOT&PF (AKDOT&PF, 2008; included in the supporting documentation).

Site Characteristics

Site features are shown on Figure A1-TACAN1. Historical photos are shown on Figure A2-TACAN1. It is assumed that the TACAN consisted of a large transmitter tower and a power source to enable signal transmission. Based on the Galena Land Occupancy Drawings notes, the site boundaries are the Parcel B boundaries.

Site Description and History

Site TACAN1 is assumed to be the location used for the first TACAN equipment installed at the Former Galena FOL. An Army document from 1964 details the history of Site TACAN1 as the following (U.S. Army, 1964):

- Use permit from Civil Aeronautics Authority (CAA), dated June 25, 1954, for 3 years from July 1, 1954, to June 30, 1957
- Amendment 1, dated March 25, 1957, extended use to December 31, 1957
- Amendment 2, dated December 13, 1957, extended use to an indefinite term

The document does not include facilities and therefore does not identify any facility at Site TACAN1.

Actual configuration of the TACAN or power source could not be identified in the available records. An historical Federal Aviation Administration (FAA) aerial photograph dated 1947 (Anchorage Museum, 2011) shows a facility in the southern portion of Parcel B (photograph is included in the supporting documentation). The precise location of this former facility has not yet been determined.

Building 654, TACAN Station Fixed, was completed in 1957 and it is assumed that the TACAN function was transferred from Site TACAN1 to Building 654 at that time. Therefore, Parcel B is assumed to have contained a TACAN facility from the 1940s until 1957.

Historical aerial photographs from 1952, 1963, 1985, and 2002, are shown on Figure A2-TACAN1. The 1952 photograph does not have adequate resolution to positively identify the facility. No structures appear on the 1963 or 1985 photographs. The 2002 photo shows two structures within the Site TACAN1 footprint. The largest structure has approximate dimensions of 13 feet by 7 feet and has a distinct, slightly darker, square feature on top. This structure is similar to other "electric power stations" used at the Former Galena FOL in the 1980s at various locations (such as Sites AST1569 and AST1875 in Appendix A). These

“electric power stations” were package units placed next to critical infrastructure or locations to provide emergency back-up power. They also included an aboveground fuel tank that was generally located on the side of the unit. This structure is not shown on the 2009 photograph used as the basis for Figure A1-TACAN1. Thus, this potential “electric power station” package unit would have been removed some time between 2002 and 2009. The second structure shown in the 2002 photo could not be identified with available records, but it also was a post-1980s addition to the site.

Summary of Previous Investigations

No investigations or sampling have been conducted at Site TACAN1.

October 2009 Site Visit Observations

Site TACAN1 was observed to be covered with dry grass and forbs (dandelion and clover) and no surface staining or petroleum odors were noted. No evidence of a former structure was observed. Figure A3-TACAN1 shows current site conditions.

Target Analytes

Because the potential tank(s) would have stored fuel oil, potential target analytes are DRO, GRO, BTEX, and PAHs. An electric power station may have been located at the site, thus target analytes will also include PCBs.

Potential Exposure Pathways and Receptors

Based on current and reasonably anticipated potential future land uses at Site TACAN1, potential human receptors and potentially complete exposure pathways include the following:

- **Excavation/Construction Workers:** Potential exposure to chemicals in soil to 15 feet bgs and shallow groundwater. Potentially complete routes of exposure to soil include incidental soil ingestion, dermal contact with soil, and inhalation of ambient vapors or dust generated from wind or during onsite excavation activities. Potentially complete routes of exposure to shallow groundwater include dermal contact with groundwater and inhalation of ambient vapors from groundwater.
- **Future Occupational Workers:** Potential exposure to chemicals in surface soil to 2 feet bgs. Potentially complete routes of exposure to surface soil include incidental soil ingestion, dermal contact with soil, and inhalation of ambient vapors or dust generated from wind. Vapor intrusion from VOCs in environmental media migrating into current or future occupational buildings is also a potentially complete exposure route.
- **Hypothetical Future Residents:** Potential exposure to chemicals in soil to 15 feet bgs and groundwater. Potentially complete routes of exposure to soil include incidental soil ingestion, dermal contact with soil, and inhalation of ambient vapors or dust generated from wind. Potentially complete routes of exposure to groundwater include ingestion, dermal contact, and inhalation of VOCs during showering or other household activities.

Vapor intrusion from VOCs in environmental media migrating into current or future residences is also a potentially complete exposure route.

During the site reconnaissance in October 2009, the site was fairly dry (unlike much of the airfield area), with dry grass and forbs (dandelion and clover). There was no visible animal activity, but there is potential for bird and small mammal use. Ecological exposure pathways are considered possible if site-related contaminants are present in surface or near-surface soil or in groundwater that may reach the surface downgradient. Therefore, more site information is needed to determine if those ecological pathways are complete.

Conclusions

Information concerning configuration and equipment at Site TACAN1 is limited. A TACAN may have been in use at the site in the 1940s and 1950s and power would have been required for a TACAN transmitter. Historical photos confirm that a structure was present at the site in 1947. The structures visible on the 2002 photograph were most likely to provide back-up power to the airfield, though they were located at the site for a limited time. There is no evidence of a spill at the site.

Recommendation: Limited Site Inspection Sampling

Limited site inspection sampling is recommended at Site TACAN1 to confirm the presence or absence of fuel-related contaminants in soil at the location of the former TACAN facility and at the location of the potential former “electric power station” package unit. The latter location will also be evaluated for possible PCB contamination.

References

- Anchorage Museum. 2011. Photographs provided on CD by Western Service Area Operations Engineering Group.
- State of Alaska and Department of Transportation and Public Facilities (AKDOT&PF). 2008. Galena Airport Land Occupancy.
- U.S. Army. 1964. Department of the Army, Office of the Alaska District, Real Estate Galena Airport Military Reservation.



LEGEND

- TACAN1
- Adjacent Site
- Abandoned Fuel Line
- Main Fuel Line

Note:
1. Imagery September 4, 2009. Pixel size 0.25 meters.

VICINITY MAP

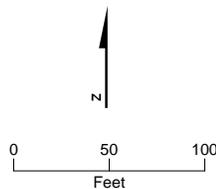
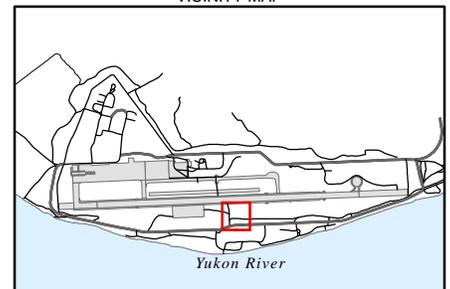
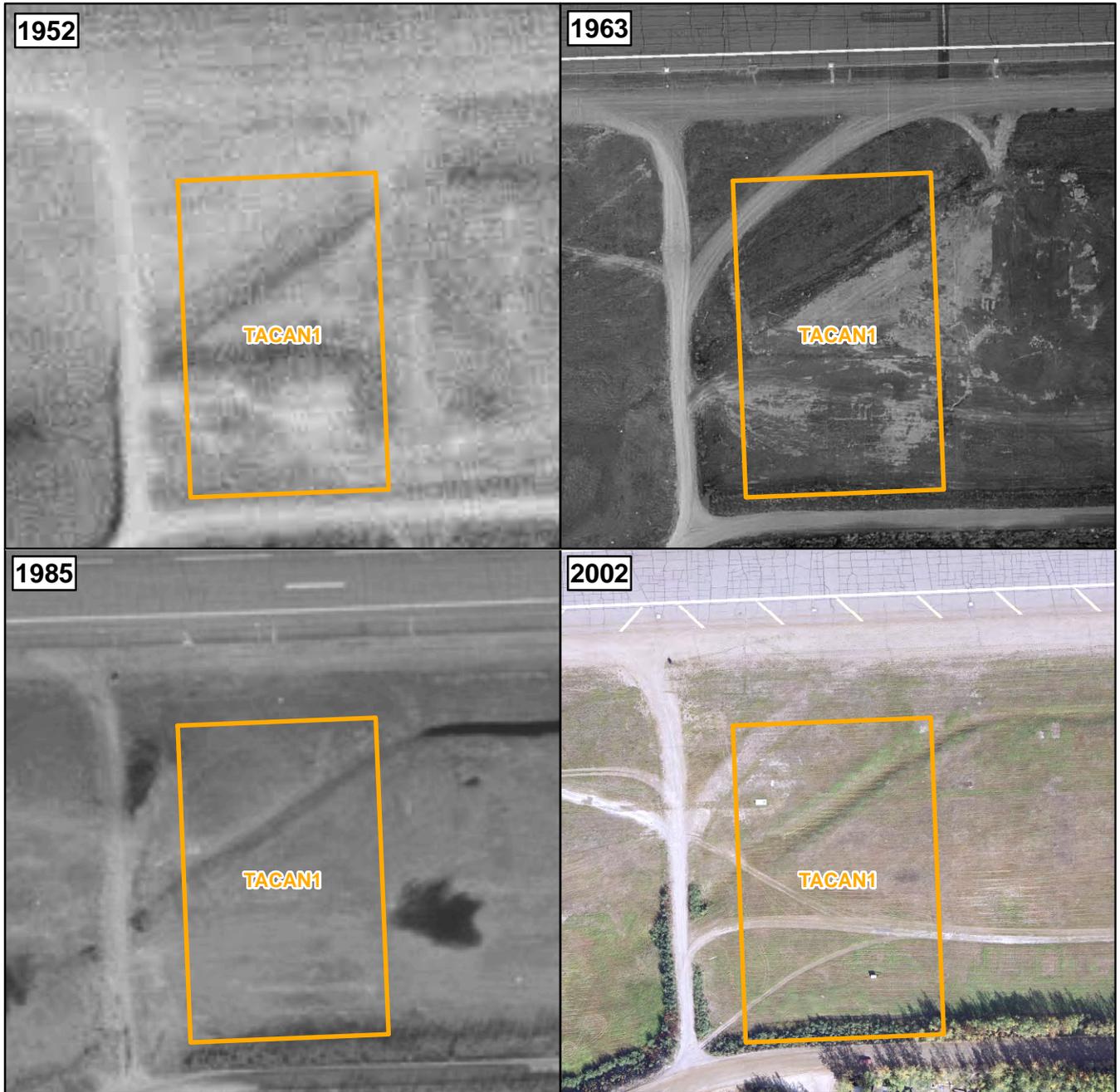


FIGURE A1-TACAN1

Site Layout

Preliminary Assessment Report
Former Galena Forward Operating Location, Alaska





LEGEND
 TACAN1

- Notes:
1. Photography Dated 1952, Georeferenced.
 2. Photography Dated 9-4-1963, Georeferenced.
 3. Photography Dated 1985, Georeferenced.
 4. Imagery August, 2002. Pixel size 0.075 meters.

VICINITY MAP

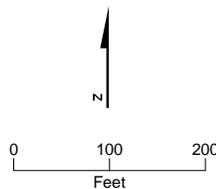
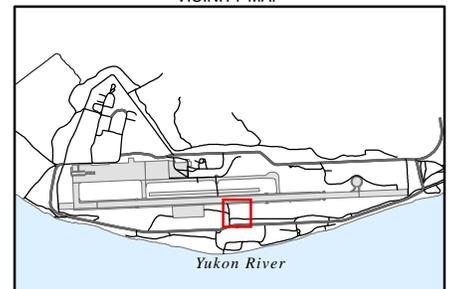
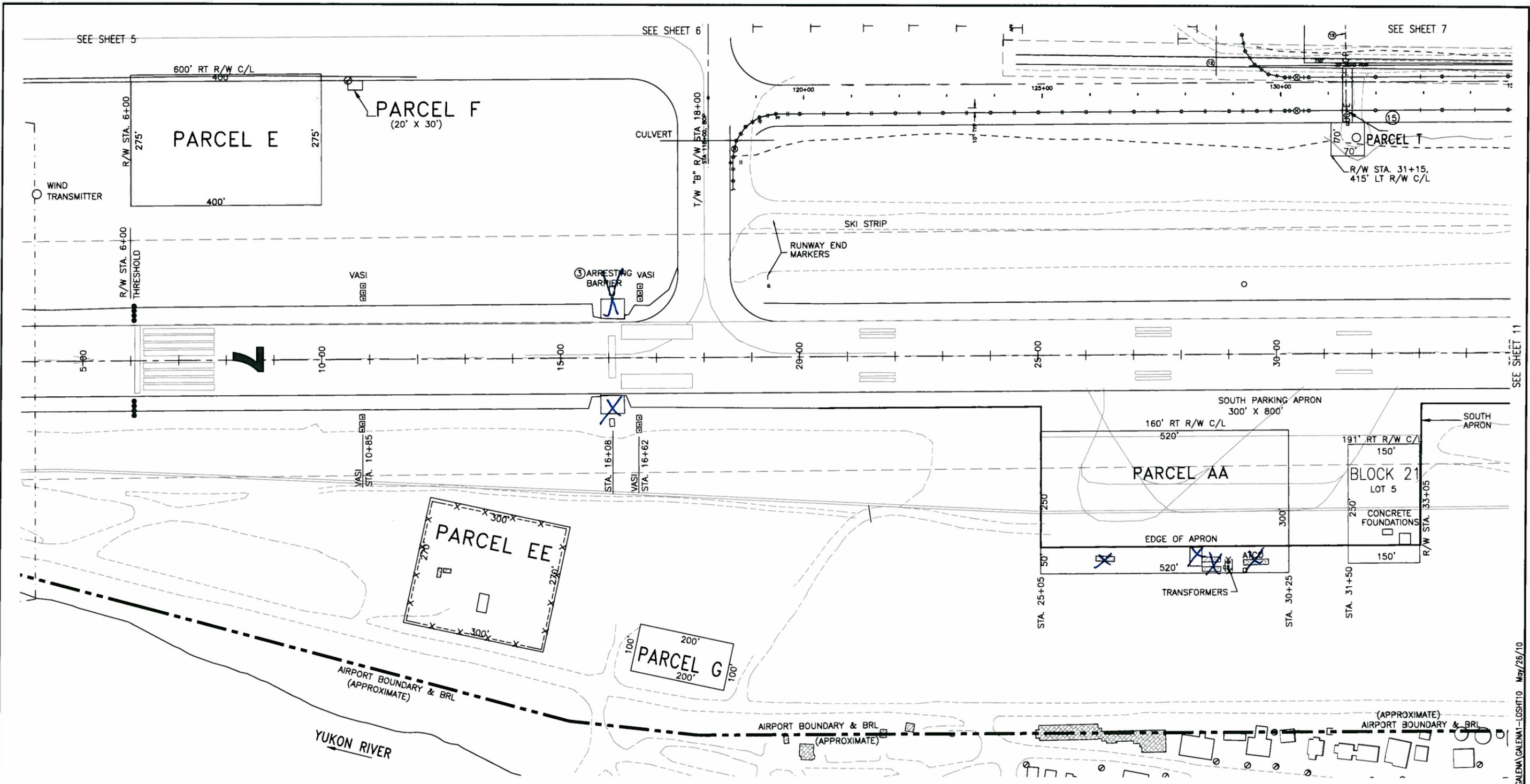


FIGURE A2-TACAN1
Historical Aerial Photography
 Preliminary Assessment Report
 Former Galena Forward Operating Location, Alaska

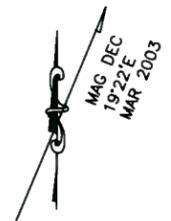


FIGURE A3-TACAN1
Looking West-southwest, October 2009

Supporting Documentation

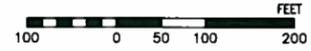


LAND OCCUPANCY						
BLK	LOT	ADA NO.	AREA (SQ. FT)	OCCUPANT	BEGIN DATE	EXP. DATE
21	5		37,500	USAF	RESERVE	INDEFINITE
PARCEL	E		110,000	FAA	RESERVE	INDEFINITE
	F		600	USAF-WEATHER STATION	RESERVE	INDEFINITE
	G	70957	20,000	RON BURGETT	07/01/1995	11/01/2006
	AA	71222	156,000	BLM, ALASKA FIRE SERVICE	09/01/1999	09/01/2008
	EE	70786	81,000	USAF	08/01/1993	10/01/2003
	T	04644	4,900	USAF - PAR SITE	02/01/1982	02/01/2032
ITEM	3	70717		USAF - ARRESTING BARRIER	01/01/2001	01/01/2006
	12	01777		USAF - 20' ROAD ROW	11/15/1971	11/15/2022
	15	04644		USAF - 20' ROW	02/01/1982	02/01/2032



DUE TO INCOMPLETE SURVEY DATA, MOST DISTANCES ARE APPROXIMATE.

The locations and elevations of all utilities shown are approximate only; locations have not been field verified. Additional utilities that are not shown on this LO also exist.



BY	DATE	CHANGE
REVISIONS		

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES
AVIATION LEASING

**GALENA AIRPORT
LAND OCCUPANCY**

APPROVED _____
BECKY CALHOON ILES
CHIEF, AVIATION LEASING

DATE: _____

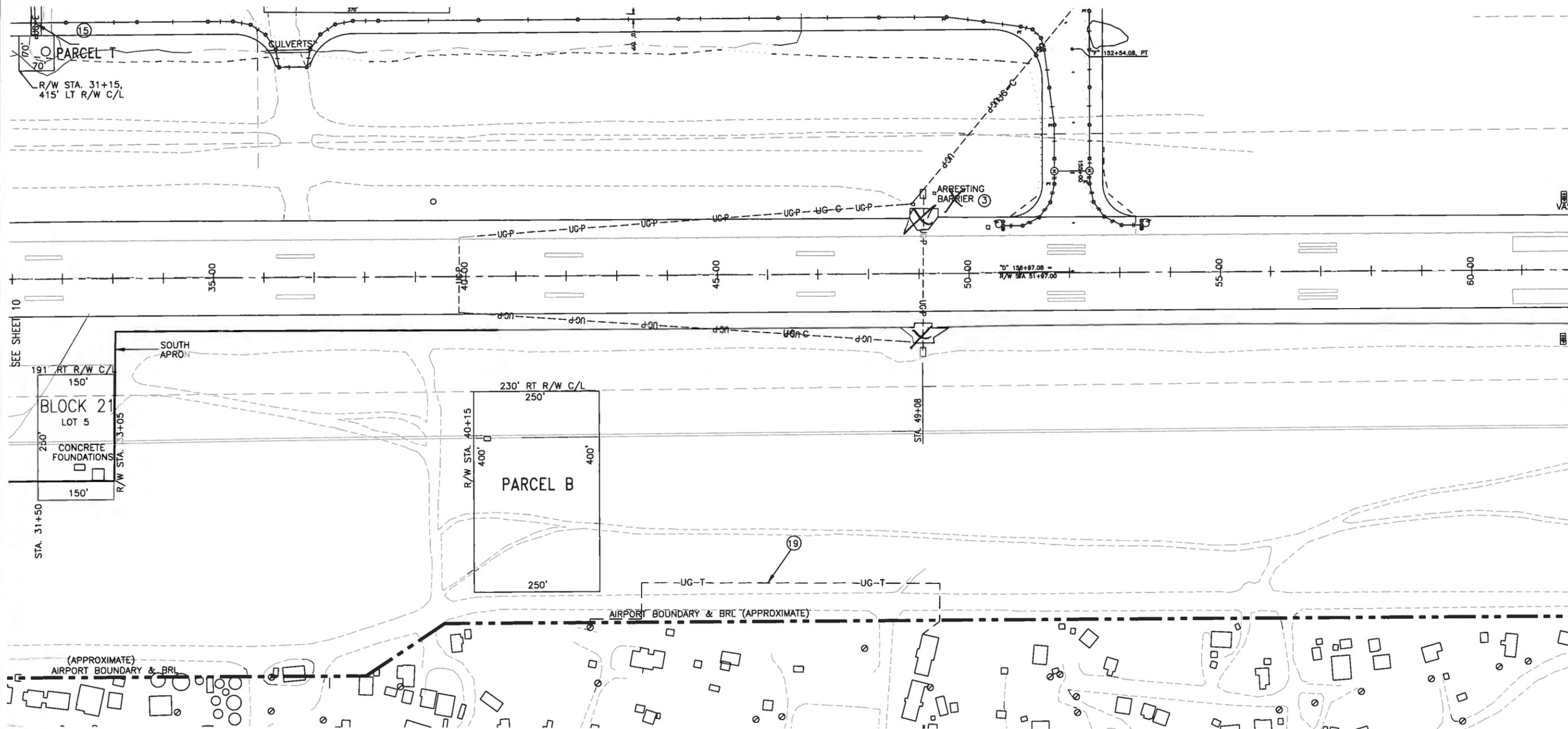
SCALE: 1" = 100'

DWN CP DATE 2/19/08 SHEET 10 OF 13

V:\A\1\A\GALENA\GALENA-LOSHIT10 May/26/10

SEE SHEET 7

SEE SHEET 8



SEE SHEET 10

SEE SHEET 9

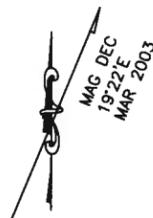
V:\A\A\TALP\GALENA\GALENA1-LOSH111 May/26/10

LAND OCCUPANCY

BLK	LOT	ADA NO.	AREA (SQ FT)	OCCUPANT	BEGIN DATE	EXP. DATE
PARCEL	B		62,500	USAF-TACAN SITE	RESERVE	INDEFINITE
	T	04644	4,900	USAF - PAR SITE	02/01/1982	02/01/2032
ITEM	3	70717		USAF-AIRCRAFT ARRESTING BARRIER	01/01/2001	01/01/2006
	15	04644		USAF - POWER CABLE ROW	02/01/1982	02/01/2032
	19	UTILITY		TELALASKA, INC. dba INTERIOR TELEPHONE CO. PERMIT 04-010	03/17/2004	INDEFINITE
21	5		37,500	USAF	RESERVE	INDEFINITE

DUE TO INCOMPLETE SURVEY DATA, MOST DISTANCES ARE APPROXIMATE.

The locations and elevations of all utilities shown are approximate only; locations have not been field verified. Additional utilities that are not shown on this LO also exist.



BY	DATE	CHANGE
REVISIONS		

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES
AVIATION LEASING

**GALENA AIRPORT
LAND OCCUPANCY**

APPROVED
BECKY CALHOON ILES
CHIEF, AVIATION LEASING
DATE: _____
SCALE
1" = 100'
OWN CP
DATE 2/19/08
SHEET 12 OF 13



Disposal Areas

APPENDIX A

DS1769

Disposal Site 1769 (Site ID DS1769)

Site Location

Site DS1769 consists of an approximately 2-acre area located roughly 250 feet west of Building 1769, outside the dike.

Site Characteristics

Site features are shown on Figure A1-DS1769. Site DS1769 consists of an area located west of Building 1769. The site was identified as a new potential area of interest from 1963 historical aerial photographs shown in the Final EBS report (USAF, February 2010).

Site Description and History

Historical aerial photographs of the site dated 1963, 1985, and 2002, are shown on Figure A2-DS1769.

- In the 1963 aerial photograph, a drum disposal area is visible approximately 250 feet west of Building 1769, outside the dike, extending to approximately 700 feet west of Building 1769.
- In the 1985 aerial photograph, a smaller cleared area and an unpaved road are visible across the site trending northwest to southeast.
- In the 2002 aerial photograph, the cleared areas are no longer visible. The unpaved road is visible.

Summary of Previous Investigations

No previous investigations or remedial actions have been conducted at Site DS1769.

October 2009 Site Visit Observations

Site DS1769 was not visited during the October 2009 site visit.

Target Analytes

Because the types and quantities of materials that may have been disposed of at Site DS1769 are unknown, target analytes include those associated with a disposal site with a multi-chemical surface release: VOCs, SVOCs, GRO, DRO, RRO, total metals, pesticides, and PCBs.

Potential Exposure Pathways and Receptors

Specific sources of contamination have not been identified for Site DS1769. However, based on current and reasonably anticipated potential future land uses at the site, potential human receptors and potentially complete exposure pathways include the following:

- **Excavation/Construction Workers:** Potential exposure to chemicals in soil to 15 feet bgs and shallow groundwater. Potentially complete routes of exposure to soil include incidental soil ingestion, dermal contact with soil, and inhalation of ambient vapors or dust generated from wind or during onsite excavation activities. Potentially complete routes of exposure to shallow groundwater include dermal contact with groundwater and inhalation of ambient vapors from groundwater.
- **Future Occupational Workers:** Potential exposure to chemicals in surface soil to 2 feet bgs. Potentially complete routes of exposure to surface soil include incidental soil ingestion, dermal contact with soil, and inhalation of ambient vapors or dust generated from wind. Vapor intrusion from VOCs in environmental media migrating into current or future occupational buildings is also a potentially complete exposure route.
- **Hypothetical Future Residents:** Potential exposure to chemicals in soil to 15 feet bgs and groundwater. Potentially complete routes of exposure to soil include incidental soil ingestion, dermal contact with soil, and inhalation of ambient vapors or dust generated from wind. Potentially complete routes of exposure to groundwater include ingestion, dermal contact, and inhalation of VOCs during showering or other household activities. Vapor intrusion from VOCs in environmental media migrating into current or future residences is also a potentially complete exposure route.

Because Site DS1769 is wooded with small- and medium-sized deciduous hardwood trees (for example, balsam poplar), terrestrial ecological receptors are present. Though an aquatic ecological exposure pathway is unlikely to be complete because the site is located more than 1,000 feet from the Yukon River, this pathway should be evaluated further.

Conclusions

Aerial photographs from 1963 indicate a historic drum disposal area located west of Building 1769. These photographs, originally included in the Final EBS report (USAF, February 2010), are included in the supporting documentation. No previous investigations or remedial actions have been conducted at Site DS1769.

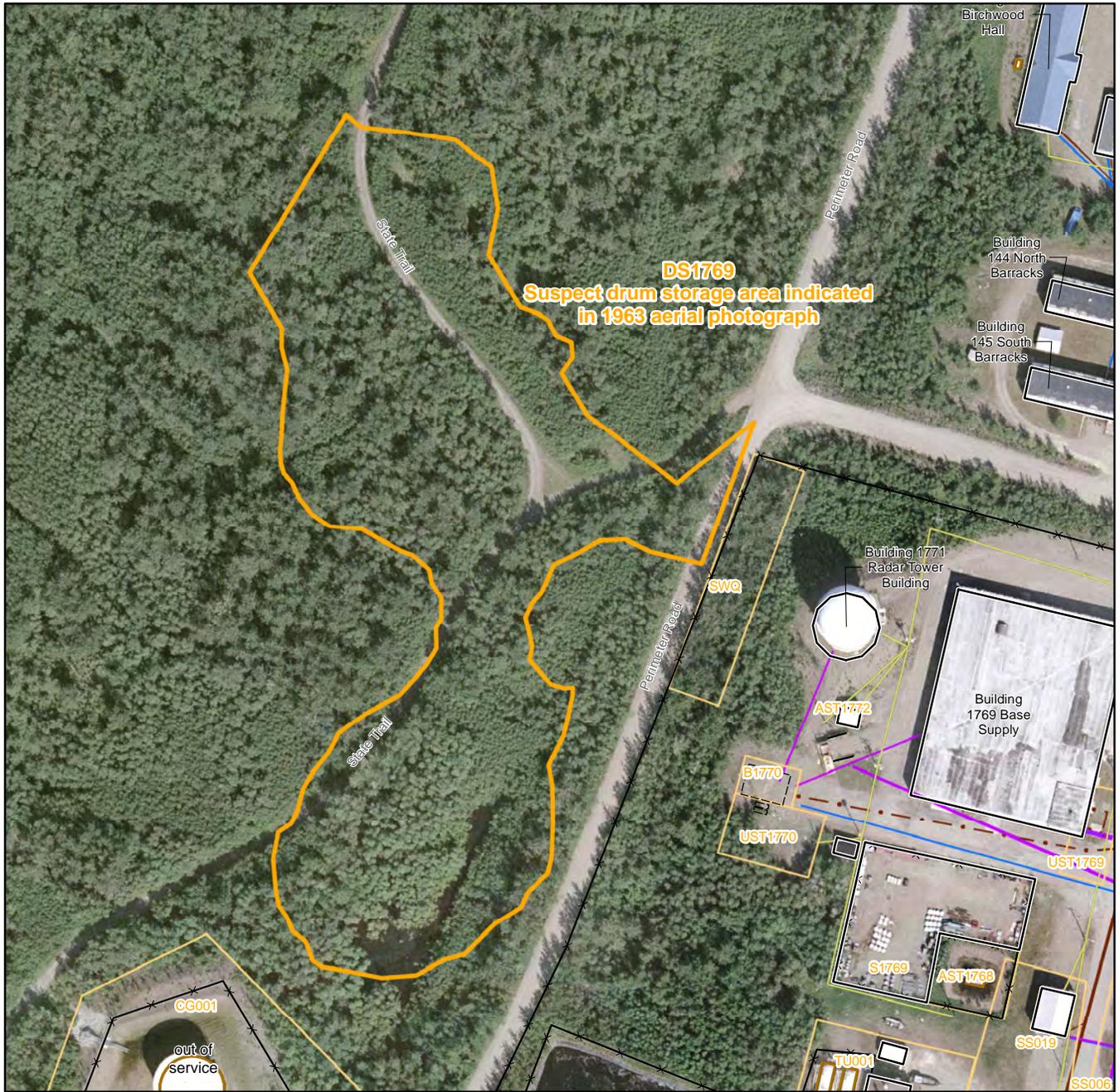
Recommendation: Site Inspection Sampling

Because the types and distribution of disposed materials are unknown, the following steps are proposed for the investigation of Site DS1769:

- Site reconnaissance and geophysical survey (if accessible)
- Soil sample collection to determine the presence or absence of contamination associated with potential disposal activities at the site

References

U.S. Air Force (USAF). February 2010. *Final Environmental Baseline Survey, Air Force Property at Galena Airport, Alaska.*



VICINITY MAP

LEGEND

- DS1769
- Adjacent Site
- Approximate Location of Former Feature
- Structure
- Fence
- Electrical Line
- Service Fuel Line
- Abandoned Fuel Line
- Main Fuel Line
- Heating/Cooling Line
- Abandoned Wastewater Line
- Main Wastewater Line
- Service Wastewater Line
- Water Line
- Fuel Tank

Note:
 1. Aerial photography courtesy Alaska Department of Commerce, Community and Economic Development, Division of Community and Regional Affairs. July 7, 2009. Pixel size 6 inch.

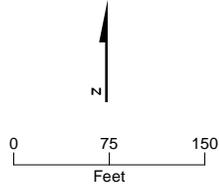
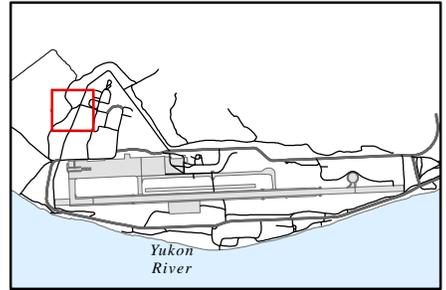
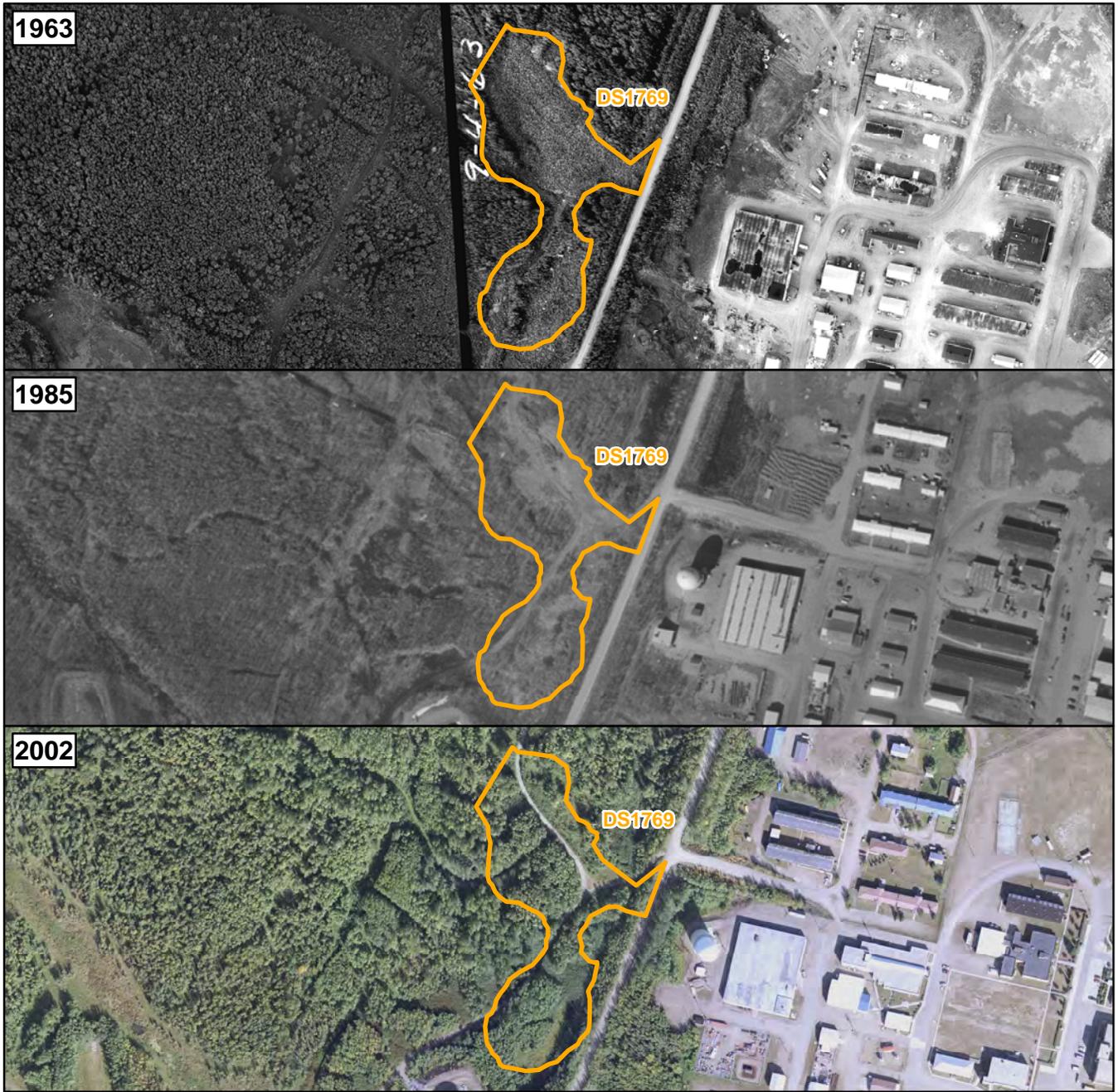


FIGURE A1-DS1769 Site Layout
 Preliminary Assessment Report
 Former Galena Forward Operating Location, Alaska



LEGEND
 DS1769

- Notes:
1. Photography dated 9-4-1963, georeferenced
 2. Photography dated 1985, georeferenced
 3. Imagery August 2002. Pixel size 0.075 meter

VICINITY MAP

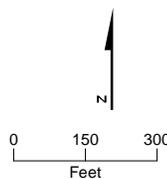
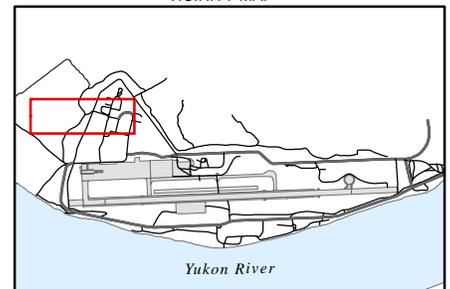


FIGURE A2-DS1769
Historical Aerial Photography
 Preliminary Assessment Report
 Former Galena Forward Operating Location, Alaska

Supporting Documentation



1-20

7-4-63

GALENA

252

AMT 2160

1963





APPENDIX A

DSNW

Northwest Disposal Area (Site ID DSNW)

Site Location

Site DSNW is located north of the Dike Road off the northwestern corner of the cantonment “triangle.”

Site Characteristics

Site features are shown on Figure A1-DSNW. Site DSNW includes approximately 8 acres.

Site Description and History

During the October 2009 site visit, an area of potentially disturbed terrain (that is, hummocky topography with mounds approximately 6 feet high and 30 feet long) was observed in the area of Site DSNW, suggesting a potential disposal site.

Historical aerial photographs of the site dated 1963, 1972, 1985, and 2002 are shown on Figure A2-DSNW. No signs of previous disposal are visible in the photographs.

A 1952 map with an area identified as a “disposal area” is provided in the supporting documentation (USAF, 1952). Site DSNW encompasses both the area indicated by the 1952 map and the area of hummocky topography observed during the October 2009 site visit.

Summary of Previous Investigations

A review of available historical documentation suggests that no previous investigations or remedial actions have been conducted at Site DSNW.

October 2009 Site Visit Observations

During the October 2009 site visit, Site DSNW was identified as a new potential area of interest. An area of potentially disturbed terrain (that is, hummocky topography with mounds approximately 6 feet high and 30 feet long) was observed in this area, and is shown on Figure A3-DSNW. The site is heavily wooded.

Target Analytes

Because the types and quantities of materials that may have been disposed of at Site DSNW are unknown, target analytes include those associated with a disposal site with a multi-chemical surface release: VOCs, SVOCs, GRO, DRO, RRO, total metals, pesticides, and PCBs.

Potential Exposure Pathways and Receptors

Specific sources of contamination have not been identified for Site DSNW. However, based on current and reasonably anticipated potential future land uses at Site DSNW, potential human receptors and potentially complete exposure pathways include the following:

- **Excavation/Construction Workers:** Potential exposure to chemicals in soil to 15 feet bgs and shallow groundwater. Potentially complete routes of exposure to soil include incidental soil ingestion, dermal contact with soil, and inhalation of ambient vapors or dust generated from wind or during onsite excavation activities. Potentially complete routes of exposure to shallow groundwater include dermal contact with groundwater and inhalation of ambient vapors from groundwater.
- **Future Occupational Workers:** Potential exposure to chemicals in surface soil to 2 feet bgs. Potentially complete routes of exposure to surface soil include incidental soil ingestion, dermal contact with soil, and inhalation of ambient vapors or dust generated from wind. Vapor intrusion from VOCs in environmental media migrating into current or future occupational buildings is also a potentially complete exposure route.
- **Hypothetical Future Residents:** Potential exposure to chemicals in soil to 15 feet bgs and groundwater. Potentially complete routes of exposure to soil include incidental soil ingestion, dermal contact with soil, and inhalation of ambient vapors or dust generated from wind. Potentially complete routes of exposure to groundwater include ingestion, dermal contact, and inhalation of VOCs during showering or other household activities. Vapor intrusion from VOCs in environmental media migrating into current or future residences is also a potentially complete exposure route.

Because Site DSNW is heavily wooded with small- and medium-sized deciduous hardwood trees (for example, balsam poplar), terrestrial ecological receptors are present. Though an aquatic ecological exposure pathway is unlikely to be complete because the site is located more than 1,000 feet from the Yukon River, this pathway should be evaluated further.

Conclusions

During the October 2009 site visit, an area of potentially disturbed terrain was observed in this area, suggesting a potential disposal site. A region northeast of the disturbed terrain was identified on a 1952 map as a “disposal area.” No previous investigations or remedial actions have been conducted at Site DSNW.

Recommendation: Site Inspection Sampling

Because the types and distribution of disposed materials are unknown, the following steps are proposed for the investigation of Site DSNW:

- Site reconnaissance and geophysical survey (if accessible)
- Soil sample collection to determine the presence or absence of contamination associated with potential disposal activities at the site

References

U.S. Air Force (USAF). 1952. Drawing No. 356-I-38. *Galena AFAF Alaska Bulk Fueling Facilities, Vicinity Map, Soil Data, and General Arrangement.*

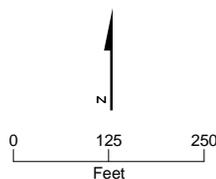
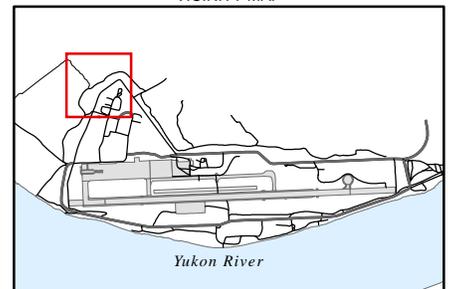


VICINITY MAP

LEGEND

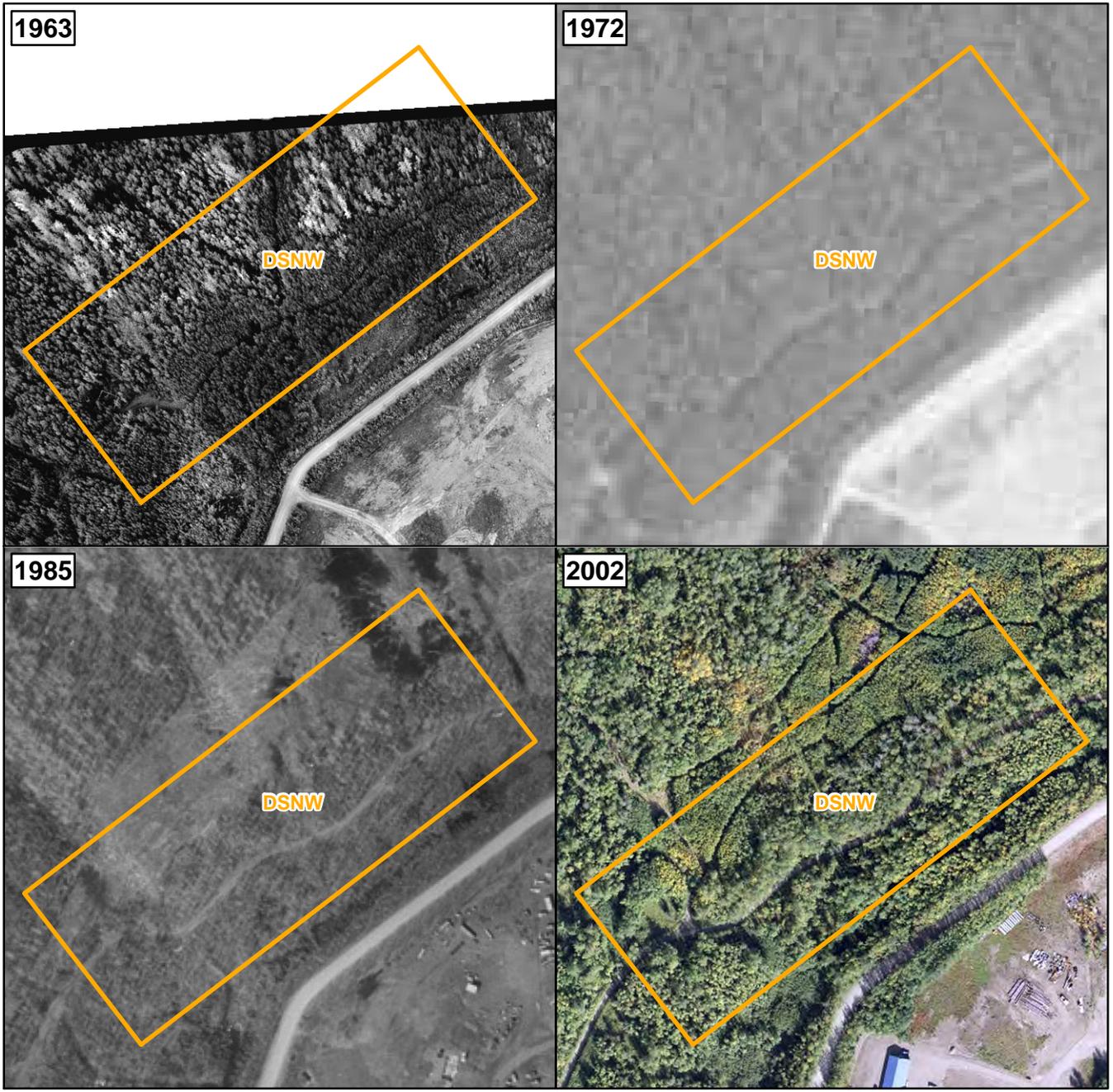
-  DSNW
-  Adjacent Site
-  Approximate Location of Former Feature

Note:
1. Imagery September 4, 2009. Pixel size 0.25 meters.



**FIGURE A1-DSNW
Site Layout**

Preliminary Assessment Report
Former Galena Forward Operating Location, Alaska



LEGEND
 DSNW

- Notes:
1. Photography Dated 9-4-1963, Georeferenced.
 2. Photography Dated 1972, Georeferenced.
 3. Photography Dated 1985, Georeferenced.
 4. Imagery August, 2002. Pixel size 0.075 meters.

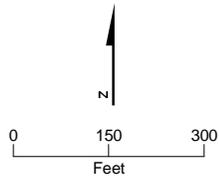
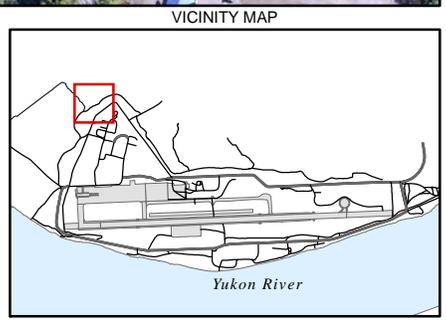


FIGURE A2-DSNW
Historical Aerial Photography
 Preliminary Assessment Report
 Former Galena Forward Operating Location, Alaska



FIGURE A3-DSNW
August 2010
Disturbed Area Photographs
Preliminary Assessment Report
Former Galena Forward Operating Location, Alaska

Supporting Documentation

APPENDIX A

DSWD

Disposal Site West of Dike (Site ID DSWD)

Site Location

Disposal Site West of Dike (Site DSWD) is located south and southwest of the base of Million Gallon Hill (ERP Site CG001/CG002).

Site Characteristics

Site features are shown on Figure A1-DSWD. Site DSWD consists of one surface debris area and one "slit" trench identified from historical drawings and aerial photographs. This area is typically inundated with water each spring when the Yukon River floods.

Site Description and History

The surface debris area was identified from a 1969 U.S. Army Corp of Engineers vicinity map for contracted construction (USAF, 1969) that labeled the area as "Disposal Area Non-Burnable." The 1969 drawing is provided in the supporting documentation.

Aerial photographs of Site DSWD from 1963, 1985, 1987, and 2002, are shown on Figure A2-DSWD. These photographs show the following changes at the site between these dates.

- 1963: A cleared area with surface debris is visible in the 1963 aerial photograph (a more detailed view is provided in the supporting documentation).
- 1985: Site DSWD appears to be less disturbed than in the 1963 aerial photograph.
- 1987: The slit trench is visible (note that the 1987 aerial image did not cover the complete DSWD site, resulting in white space on a portion of the photograph).
- 2002: The slit trench is not visible, and the area is overgrown with brush and trees.

During a 2010 RAB meeting, a resident stated that PCB oil from transformers had been disposed of west of the dike. During the 2011 RAB meeting, the resident pointed to a location within Site DSWD and recalled that the PCB oil was disposed of in a trench. A review of the aerial photographs only identified the one trench (the slit trench) which did not match the trench location identified by the resident. PCBs will be included in the analysis of samples collected from the known slit trench area and from other trenches if they are discovered during the investigation of the debris area.

Site DSWD was created as a new site rather than being combined with ERP Site LF012 and/or Site LF008 because it is a newly identified potential disposal area not included within the footprint of ERP Site LF012.

Summary of Previous Investigations

Historic sample locations at Site DSWD are shown on Figure A3-DSWD.

Soil Sampling at ERP Site CG001/CG002 (1991 to 2009)

Although no previous investigations were documented at Site DSWD, investigations associated with USTs at ERP Site CG001/CG002 had one surface soil sample and three soil

vapor samples within the surface debris area (see Figure A3-DSWD). Specific historical reports were not identified, though data for the soil sample are present in the USAF database. No information is currently available about the collection date, sample depth, or analytical results for the three soil vapor samples (09-ESG-05 through 09-ESG-07).

The surface soil sample 09-SS-03 was collected in 1992 and analyzed for DRO (M8015D), GRO (M8015V), metals (SW6010 and arsenic by SW7060, lead by SW7421, mercury by SW7471, selenium by SW7740), pesticides (SW8080), VOCs (SW8240), and SVOCs (SW8270).

The only analyte to exceed ADEC Method 2 cleanup levels in this soil sample was benzo(a)pyrene with a concentration of 0.051 mg/kg (ADEC Method 2 cleanup level of 0.049 mg/kg).

October 2009 Site Visit Observations

This area was not visited during the October 2009 site visit.

Target Analytes

Historical photographs identified an area with surface debris and a slit trench at Site DSWD. The contents of the disposal areas at the site are unknown. Based on the types of activities conducted at the Former Galena FOL, industrial waste may have been disposed of at the site. This may include surplus and retired equipment, operational debris, construction debris, drums, and/or residential garbage. Wastes may have been burned in the trench.

Because the types and quantities of materials that may have been disposed of at Site DSWD are unknown, target analytes include those associated with a disposal site with a multi-chemical surface release: VOCs, SVOCs, GRO, DRO, RRO, total metals, pesticides, and PCBs.

Potential Exposure Pathways and Receptors

Specific sources of contamination have not been identified for Site DSWD. Based on current and potential future land uses at this site, potential human receptors and potentially complete exposure pathways include the following:

- **Excavation/Construction Workers:** Potential exposure to chemicals in soil to 15 feet bgs and shallow groundwater. Potentially complete routes of exposure to soil include incidental soil ingestion, dermal contact with soil, and inhalation of ambient vapors or dust generated from wind or during onsite excavation activities. Potentially complete routes of exposure to shallow groundwater include dermal contact with groundwater and inhalation of ambient vapors from groundwater.
- **Future Occupational Workers:** Potential exposure to chemicals in surface soil to 2 feet bgs. Potentially complete routes of exposure to surface soil include incidental soil ingestion, dermal contact with soil, and inhalation of ambient vapors or dust generated from wind. Vapor intrusion from VOCs in environmental media migrating into current or future occupational buildings is also a potentially complete exposure route.

- **Hypothetical Future Residents:** Potential exposure to chemicals in soil to 15 feet bgs and groundwater. Potentially complete routes of exposure to soil include incidental soil ingestion, dermal contact with soil, and inhalation of ambient vapors or dust generated from wind. Potentially complete routes of exposure to groundwater include ingestion, dermal contact, and inhalation of VOCs during showering or other household activities. Vapor intrusion from VOCs in environmental media migrating into current or future residences is also a potentially complete exposure route.

Because Site DSWD is wooded with small- and medium-sized deciduous hardwood trees (for example, balsam poplar), terrestrial ecological receptors are present. Though an aquatic ecological exposure pathway is unlikely to be complete because the site is located more than 1,000 feet from the Yukon River, this pathway should be evaluated further.

Conclusions

Site DSWD was identified as a disposal area from historical drawings and aerial photographs. Specific sources of contamination have not been identified for the site.

Recommendation: Site Inspection Sampling

Because the types and distribution of disposed materials are unknown, the following steps are proposed for the investigation of Site DSWD:

- Site reconnaissance and geophysical survey (if accessible)
- Soil sample collection to determine the presence or absence of contamination associated with potential disposal activities at the site

References

- Radian. December 1993. *Remedial Investigation Geophysical Survey, Galena Air Force Station, Alaska.*
- Shannon & Wilson. September 1996. *Landfill Closure Plans, Galena Landfills, Galena, Alaska.*
- U.S. Air Force (USAF). 1969. Drawing No. AS-BLT AW 16-06-1908. *Schedules "A", "B", & "C" Location & Vicinity Map, File No 355-2-30.*



LEGEND

- DSWD
- Adjacent Site
- Fence
- Abandoned Fuel Line
- Main Fuel Line
- Main Wastewater Line

Note:
 1. Aerial photography courtesy Alaska Department of Commerce, Community and Economic Development, Division of Community and Regional Affairs. July 7, 2009. Pixel size 6 inch.

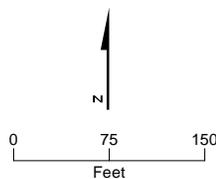
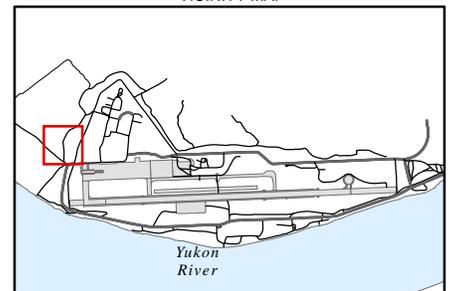
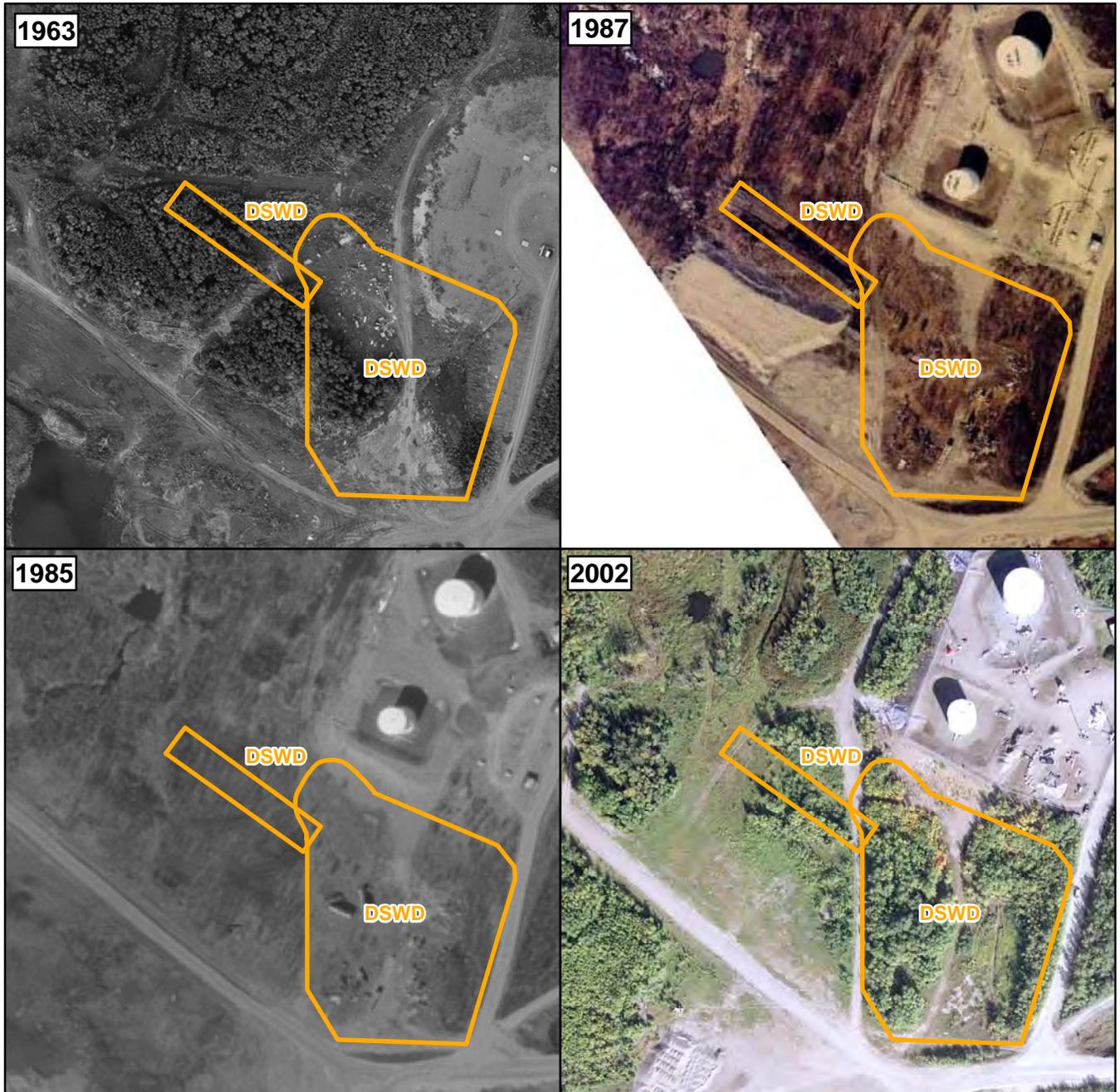


FIGURE A1-DSWD Site Layout

Preliminary Assessment Report
 Former Galena Forward Operating Location, Alaska



LEGEND
 DSWD

- Notes:
1. Photography Dated 9-4-1963, Georeferenced.
 2. Photography Dated 1969, Georeferenced.
 3. Photography Dated 1987, Georeferenced.
 4. Imagery August, 2002. Pixel size 0.075 meters.

VICINITY MAP

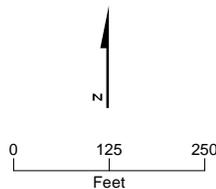
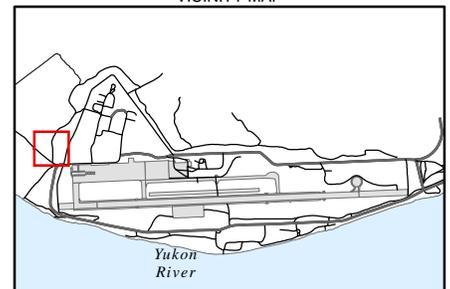
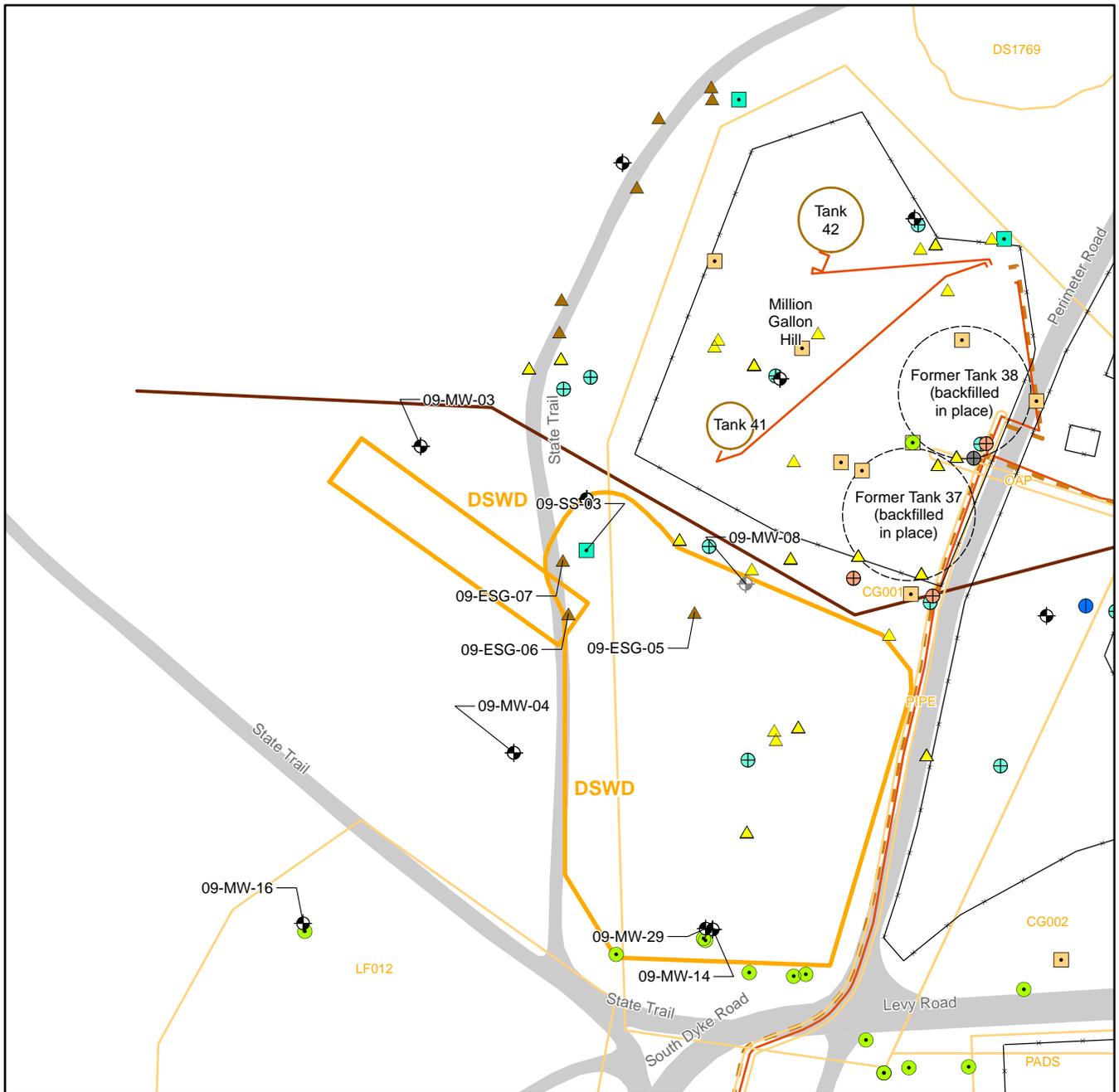


FIGURE A2-DSWD
Historical Aerial Photography
 Preliminary Assessment Report
 Former Galena Forward Operating Location, Alaska

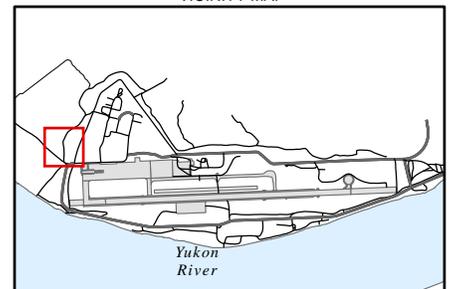


LEGEND

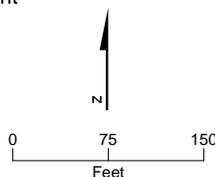
- DSWD
- Adjacent Site
- Road
- Fuel Tank
- Fence
- Abandoned Fuel Line
- Main Fuel Line
- Main Wastewater Line

Historical Sample Location

- Soil Boring
- Surface Soil Sample
- Hydro Punch
- Monitoring Well
- Abandoned Monitoring Well
- Product Recovery Well
- Bioventing System Well
- Soil Vapor Sample
- Vapor Monitoring Point



Notes:
1. Imagery September 4, 2009. Pixel size 0.25 meters.



**FIGURE A3-DSWD
Historical Sample Locations**

Preliminary Assessment Report
Former Galena Forward Operating Location, Alaska

Supporting Documentation

1-22

9-4-63

GALENA

AMT 2100 252.

Cleared area with surface debris

Cleared area with surface debris



LIST OF DRAWINGS - SCHEDULE "A"

DRAWING NO.	SHEET NO.	REFERENCE NO.	DRAWING TITLE
AW 16-06-1908	1		LOCATION AND VICINITY MAP
		CIVIL	
AW 11-01-1214	1		PLANS & SECTIONS
		ELECTRICAL	
AW 86-11-55	1	ED-1	GENERAL PLAN & PLAN I
"	2	ED-2	PLANS II, III & DETAILS
"	3	ED-3	PLANS, ELEVATIONS & DETAILS
"	4	ED-4	REGULATOR VAULT PLANS & DETAILS
"	5	ED-5	REGULATOR VAULT WORK DRAWING

LIST OF DRAWINGS - SCHEDULE "B"

DRAWING NO.	SHEET NO.	REFERENCE NO.	DRAWING TITLE
AW 16-06-1908	1		LOCATION AND VICINITY MAP
		ARCH, MECH & ELEC	
AW 71-01-253	1		LOCATION, PLANS, SECTIONS & DETAILS

LIST OF DRAWINGS - SCHEDULE "C"

DRAWING NO.	SHEET NO.	REFERENCE NO.	DRAWING TITLE
AW 16-06-1908	1		LOCATION AND VICINITY MAP
		UTILIDORS	
AW 71-01-254	1		PLANS & DETAILS
		US-2	MANHOLE DETAILS
		MANHOLE	DETAILS
		M-1	BLDG 488 PLANS & DETAILS
		M-2	BLDG 759 PLANS & DETAILS
		M-3	BLDG 855 B 1856 FOUNDATION
		M-4	AT B 244 FLOOR PLANS
		M-5	BLDG 855 B 1856 PLANS, SECTIONS & DIAGRAM
		M-6	BLDG 859 BOILER ROOM
		M-7	BLDG 855 KITCHEN PLAN
		M-8	BLDG 851 FOUNDATION AT B 240 FLOOR PLANS
		M-9	BLDG 851 TYPICAL FURN & DETAILS
AS-BLT AW 26-06-194	1		EXHIBIT "C" (ARCHITECTURAL)
AS-BLT AW 21-01-112	5		ADDITIONAL FLOOR INSULATION PIPING RACKWAY LAYOUT TYPICAL 1/2" X 1/2" RUM AND LATRINE DETAILS



LEGEND

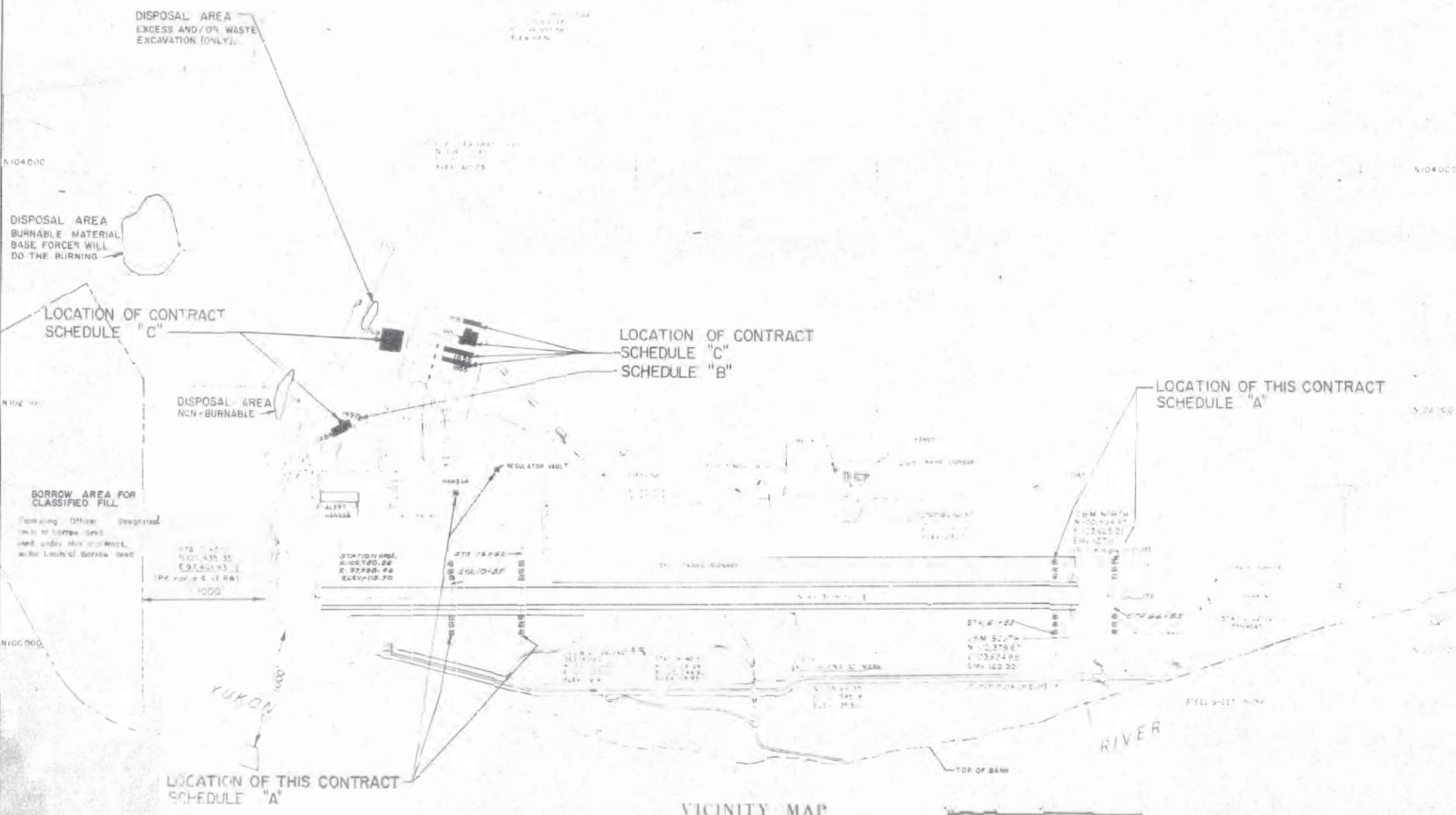
- BUILDING
- BUILDING
- ROAD
- LIGHTS

NOTES

1. ORIGIN COORDINATES U.S.C. & G.S. GALENA 1945 N 100,000 E 100,000 ORIENTED TO TRUE NORTH AT THE ORIGIN ON THE BASIS OF TRIANGULATION BETWEEN U.S.C. & G.S. GALENA 1945 AND U.S.C. & G.S. GALENA 191242
2. HORIZONTAL AND VERTICAL POSITIONS FROM SCHEDULE "A" IS IN REFERENCE TO THE CENTER LINE OF THE RAILWAY

- SCHEDULES "A" - INSTALL VASI SYSTEM, RUNWAY
 "B" - ALTER SANITARY SEWAGE FACILITIES BLDG.
 "C" - REPAIR OF HEATING, CONDENSATE & WATER LINES (6 BLDGS)

THIS DRAWING SHOWS AS-BUILT CONSTRUCTION



DESIGNED	DATE
DRAWN	
TRACED	
CHECKED	
SUBMITTED	
RECOMMENDED	DATE
APPROVED	DATE
SCALE	AS SHOWN
DRAWING NUMBER	AS-BLT AW 16-06-1908
DATE	63-45

FILE NO. 355-2-30



APPENDIX A

SWQ

Potential Solid Waste Disposal Area (Site ID SWQ)

Site Location

Site SWQ (Grant: ADA-02195) is located west of Building 1769, Supply Warehouse, and east of the perimeter road. The site encompasses Parcel Q as identified in the 1973 lease (Alaska Department of Public Works and the USAF, April 5, 1973).

Site Characteristics

Site features are shown on Figure A1-SWQ. Parcel Q is a 10,000–square-foot area leased to the USAF on July 1, 1972, for 50 years. No facilities were constructed in this area.

Site Description and History

Site SWQ is located on steep sloping ground heavily wooded with small and medium-size deciduous hardwood trees (such as balsam poplar). A 1969 historical drawing (USACE, 1969; included in supporting documentation) labels the area west of the Radome and east of the Dike Road as “Disposal Area Excess and/or Waste Excavation (Only).” The boundary of the “Disposal Area Excess and/or Waste Excavation (Only)” does not directly correlate to Parcel Q, but is in the same general area. Correspondence in the Real Property records from the 1980s indicates that the USAF entered into a lease to construct a solid-waste disposal facility (USAF, April 14, 1988). It appears there may have been a misunderstanding regarding the nature and location of the solid-waste disposal facility. Historical photos from 1963 and 1985 (Figure A2-SWQ) do not show any construction or landfill activities in Parcel Q. However, south of Site SWQ is Building 1770 (shown as B1770 on Figure A1-SWQ). This building was a solid-waste incinerator constructed in 1974. It appears that the “solid waste disposal facility” was Building 1770 and it was constructed by the USAF, but not in the location (Parcel Q) they originally leased for it. Parcel Q was not used for incinerator ash disposal purposes either, as the incinerator ash was disposed of at local landfills (Engineering-Science, September 1985, p. 4–42). There are no records or indications that Site SWQ was ever used for solid waste disposal.

Summary of Previous Investigations

No previous investigations have been conducted at Site SWQ.

October 2009 Site Visit Observations

An inspection was conducted at Site SWQ in October 2009. Figures A3-SWQ and A4-SWQ show the site. A few crushed drums were observed in the steep sloping ground (Figure A5-SWQ), however these appear to be intermittent debris rather than from previous disposal activities. No drums with waste material appear to have been disposed at the site. Although the dates shown on Figures A4-SWQ and A5-SWQ indicate the photos were taken in 2003, they were taken during the site visit in 2009. The photographer did not know the camera date was set incorrectly at the time the photographs were taken. No other signs of solid waste were apparent and no leaks, odors, or stained soil was observed. Numerous vole burrows were found on the sloping ground.

Target Analytes

Because a release has not occurred from Site SWQ, no target analytes have been identified.

Potential Exposure Pathways and Receptors

There is no soil data or other indication of contamination at Site SWQ, therefore no complete human health or ecological pathways exist at the site.

Conclusions

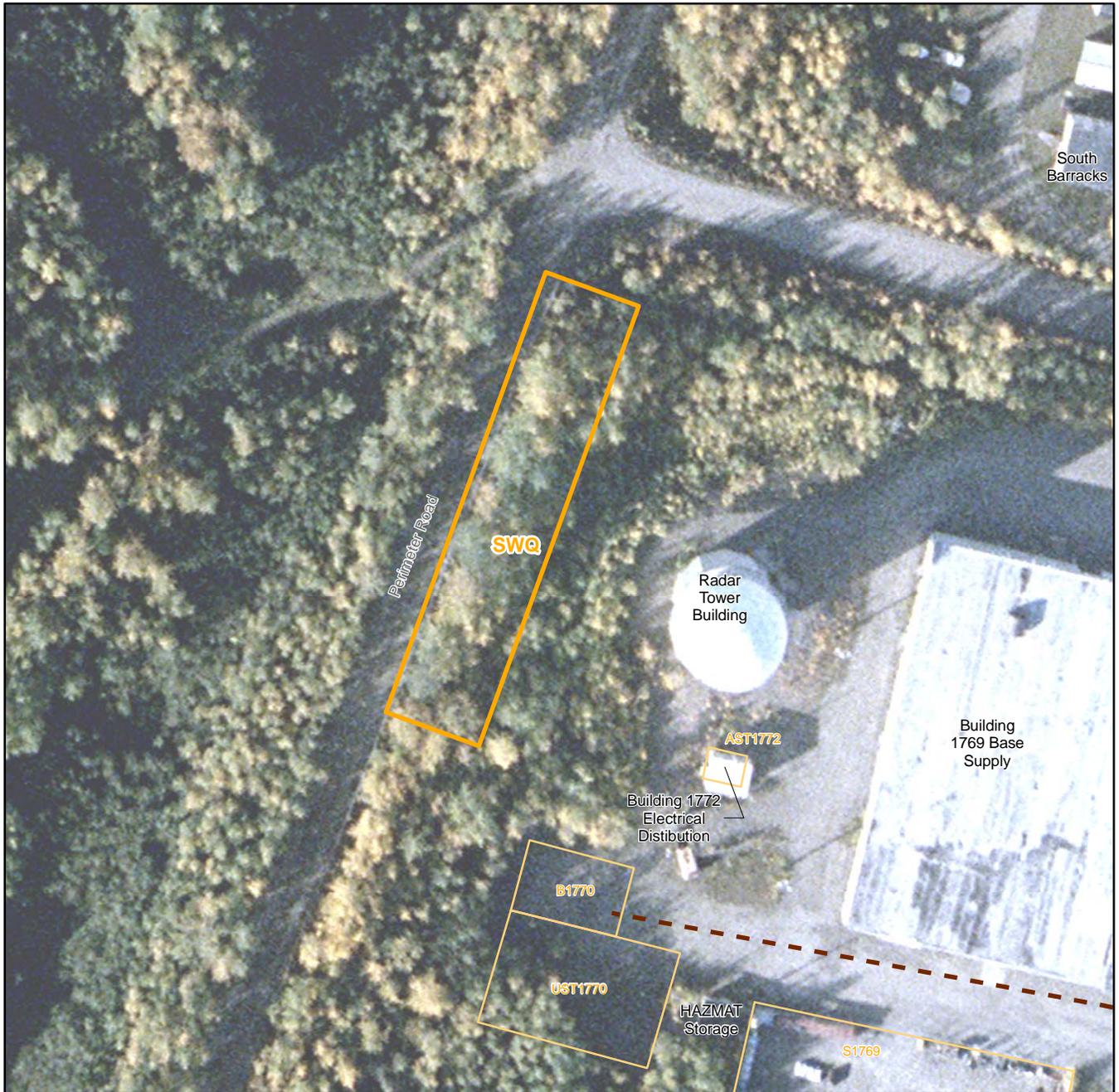
A historical drawing labels Site SWQ as "Disposal Area Excess and/or Waste Excavation (Only)." However, historical photos as well as current site conditions do not indicate that materials have been disposed of in this area. The construction date of Building 1770 appears to indicate that the original intent of the lease was not carried out at Site SWQ. While crushed drums were visible, they were not associated with waste disposal and did not appear to indicate a larger disposal area.

Recommendation: "Non-Site"

Because there is no evidence that Site SWQ was used as a solid-waste disposal area (landfill), designation of Site SWQ as a "Non-Site" is recommended. The encountered debris and drums (related to USAF activities) should be removed from the site.

References

- Alaska Department of Public Works and the U.S. Air Force (USAF). April 5, 1973. Lease Agreement for Galena Airport. Lease No. ADA-02195.
- Engineering-Science. September 1985. *Installation Restoration Program, Phase 1: Records Search, AAC Northern Region.*
- U.S. Air Force (USAF). April 14, 1988. Michael Blair, Lt Colonel, 5099 Civil Engineering Operations Squadron. Letter to State of Alaska Department of Transportation and Public Facilities (AKDOT&PF).
- U.S. Air Force (USAF), Headquarters Alaska Air Command. February 26, 1988. Amy Wickstrom, Director of Programs. Letter to Mr. Bruce, HQ AAC/DEEA. U.S. Army Corps of Engineers (USACE). 1969. Drawing No. AS-BLT AW 16-06-1908. 1969. *Schedules "A", "B", & "C" Location & Vicinity Map, File No 355-2-30.*

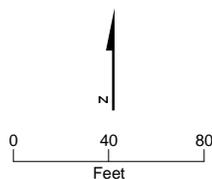
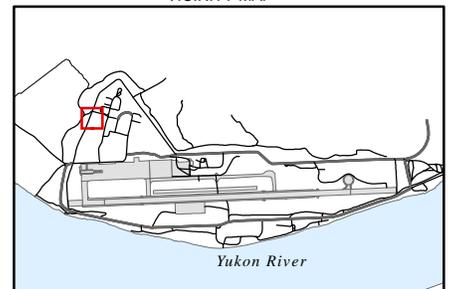


LEGEND

- SWQ
- Adjacent Site
- Abandoned Wastewater Line

Note:
1. Imagery September 4, 2009. Pixel size 0.25 meters.

VICINITY MAP



**FIGURE A1-SWQ
Site Layout**

Preliminary Assessment Report
Former Galena Forward Operating Location, Alaska



LEGEND
 SWQ

Notes:
 1. Photography Dated 9-4-1963, Georeferenced.
 2. Photography Dated 1985,

VICINITY MAP

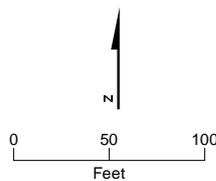
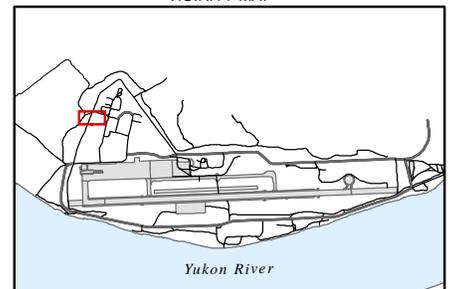


FIGURE A2-SWQ
Historical Aerial Photography
 Preliminary Assessment Report
 Former Galena Forward Operating Location, Alaska



FIGURE A3-SWQ
Site SWQ, October 2009



FIGURE A4-SWQ
Site SWQ, October 2009
Note: The date of 2003 is incorrect. The photographer did not know the camera date was set incorrectly.



FIGURE A5-SWQ

Site SWQ, October 2009

Note: The date of 2003 is incorrect. The photographer did not know the camera date was set incorrectly.

Supporting Documentation



DEPARTMENT OF THE AIR FORCE
5099 CIVIL ENGINEERING OPERATIONS SQUADRON (AAC)
ELMENDORF AIR FORCE BASE, ALASKA 99506-5000

12.12.2.11
WJB File in Galena Folder

REPLY TO: DEED (SSgt Moton 552-3948, ext 209)

14 April 1988

ATTN OF:
SUBJECT: Galena Airport Lease Agreement ADA-02195 (Your Ltr, 16 March 1988)

to: State of Alaska
Department of Transportation and Public Facilities
Northern Region
Airport Leasing/Property Management
2301 Peger Road
Fairbanks, Alaska 99709-5316

Attached is a site plan of Galena Airport showing the scaled distance between the improvements and the leasehold boundaries. Because this area has never been surveyed, the distances shown are only estimates.

SIGNED

MICHAEL I. BLAIR, Lt Col, USAF
Commander

1 Atch
Site Plan

cc: HQ AAC/DEPE wo Atch
~~21 CES/DEER wo Atch~~
5072 CSS/DE wo Atch

UNITED STATES AIR FORCE



SEPTEMBER 18, 1947



DEPARTMENT OF THE AIR FORCE
HEADQUARTERS ALASKAN AIR COMMAND
ELMENDORF AIR FORCE BASE, ALASKA 99506-5001

Galena
folder
12-12-88
YJB

REPLY TO
ATTN OF DEP

26 FEB 1988

SUBJECT Galena Landfill Issues

TO HQ AAC/DEEA (Mr Bruce)

1. As requested on 19 Feb 88, the attached letter from ADEC-NRO was reviewed.
2. The USAF does not own the solid waste disposal site servicing Galena. It is owned by the City of Galena. We maintain the Galena landfill for the City of Galena in lieu of paying user fees. If the USAF were to apply for the permit it would have to be for an AF only landfill and would go contrary to USAF and State of Alaska policy on regionalization of Solid Waste Disposal Facilities.
3. This office contacted ADEC-NRO on 19 Feb 88 and talked to Mr Pete McGee and Mr William Morgan on this issue. They agreed that the City of Galena is the proper applicant for the landfill application and will be researching their files to determine the status of the city's application. ADEC-NRO will not require the USAF to apply for the Solid Waste Disposal Permit.
4. Questions may be directed to Mr James W. Hostman at 552-4151.

Amy Wickstrom

AMY WICKSTROM
Director of Programs

1 Atch
ADEC-NRO Ltr, 10 Feb 88 wo Atch

cc: CENPA-PM-AF
21 CSG/DEER
5072 CSS/DEM

STATE OF ALASKA

DEPT. OF ENVIRONMENTAL CONSERVATION

February 10, 1988

DKW
STEVE COWPER, GOVERNOR

(907) 452-1714

Northern Regional Office
1001 Noble Street
Suite 350
Fairbanks, Alaska 99701

John Allender, Project Manager Air Force Section
Department of the Army
U.S. Army Engineer District Alaska
P.O. Box 898
Anchorage, Alaska 99506-0898

Dear Mr. Allender,

Re: Galena Airport Plan Review

We have reviewed the plans for the above referenced project and have the following comments and questions:

1. If fuel is encountered during excavation contact this office immediately.

2. The solid waste disposal site indicated on the location and vicinity map does not have a permit as required by 18 AAC 60. We have enclosed an application for your use.

3. The sanitary sewer line from building 1873 crosses new manhole #2A. This manhole also contains the utilidor housing a water line among other utilities. Since this utilidor is existing we do not know if it is graded to drain as required by 18 AAC 80. Can this manhole be relocated to avoid the crossing the sewer line and provide cleanouts for servicing the sewer line.

4. The sewage lagoon does not have a permit from the Department as required by 18 AAC 72. However, an application is in process.

We have no other questions or concerns about this project and intent to grant approval upon the satisfactory resolution of these questions. A construction certificate will be signed and forwarded to you at that time.

Sincerely,

William D. Morgan

William D. Morgan
Environmental Field Officer

wdm:rlc

Enclosure: Solid Waste Permit Application

cc. Stan Justice

860.07.001

860.45.005



File Galena
12-12.C.1 JKW



DEPARTMENT OF THE AIR FORCE
HEADQUARTERS ALASKAN AIR COMMAND
ELMENDORF AIR FORCE BASE, ALASKA 99506-5001

JAN 28 1988

REPLY TO
ATTN OF: DEP

SUBJECT: As-Built Drawing for State of Alaska Agreements at Galena Airport

TO: 5099 CEOS/DEEP

1. Reference:

- a. State of Alaska Agreement No. ADL02195, (DACA85-5-73-60) is a lease to construct a solid waste disposal facility.
- b. State of Alaska Agreement No. ADL02197, (DACA85-5-73-61) is a lease for a fuel storage tank area.
- c. HQ AAC/DEP Ltr, 9 Oct 87

2. Please provide one full size reproducible set of as-built drawings for references 1a and 1b, to the COE by 8 Feb 88 for submittal to the state. A copy of your letter of transmittal to the COE is requested for HQ AAC/DEPE files.

3. If you have any questions, please call Mr Paul Heimsath, HQ AAC/DEPE, 552-2484.

Amy Wickstrom
AMY WICKSTROM
Director of Programs

cc: 21 CSG/DEER



LEASE
FROM
STATE OF ALASKA
FOR
CONSTRUCTION OF SOLID
WASTE DISPOSAL FACILITY

DACA 85-5-73-60
(ADA 02195)

0.23 AC
Tract 400, area #1
Rent \$1.00
TRACT 400 LE

GALENA

<u>FACILITY</u>	<u>VOUCHER</u>	<u>EXPIRATION</u>
92-200	74-0289 74-0706	1 July 2027

13-C
1/71

STATE OF ALASKA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF AVIATION

Galena Airport
DACA 85-5-73-60

LEASE AGREEMENT

LEASE NO. ADA-02195

THIS INDENTURE, made this 5 day of April, 19 73, by and between the State of Alaska, Lessor, and United States of America (Department of the Air Force), Lessee, whose address is c/o Alaska District Corps of Engineers, P.O. Box 7002, Anchorage, Alaska 99510.

WITNESSETH:

That the Lessor, in consideration of the payments of the rents and the performance of all the covenants herein contained by the Lessee, does hereby demise and lease to the Lessee the following described property in the Nulato Recording District, Alaska, to wit: a parcel of land consisting of 10,000 square feet on the Galena Airport as shown on Exhibit A which is attached hereto and made a part hereof.

for the term of 55 year(s) from the first day of July, 19 72, to the first day of July, 2027, at the ~~annual~~ rental of \$ 1.00 for the term. ~~Receipt of \$50.00 is hereby acknowledged.~~ Right of Entry and Occupancy is authorized as of the 1 day of April, 19 73.

The purposes for which this lease is issued are:

Construction, maintenance and operation of a solid waste disposal facility with connecting access ramp.

and the Lessee agrees to continue to use the land or privilege granted uninterrupted by periods which in the aggregate amount to more than one year.

Incl 13

74-0289

Atch 1

GENERAL COVENANTS

1. Except as provided herein, any regular use of land or facilities without the written consent of the State is prohibited. This prohibition shall not apply to use of areas designated by the State for specified public uses such as, but not necessarily limited to: passenger terminals, automobile parking areas, roads and streets.
2. Solicitation of donations, begging, panhandling, loitering, or the promotion or operation of any part or kind of business or commercial enterprise upon, in or above airport lands without the written consent of the State is prohibited.
3. Any or all personal or real property placed or used upon lands or in facilities in violation of the preceding prohibitions may be removed and/or impounded by the State, and when so removed and/or impounded, such property may be redeemed by the owner thereof only upon the payment to the State of the costs of removal plus storage charges of \$1.00 per day in the case of each aircraft of not more than 6,000 pounds gross weight or \$5.00 per day in the case of each building, each aircraft in excess of 6,000 pound gross weight, or in the case of any other kind of property, an amount as determined by the State to be reasonable.
4. The Lessee agrees to pay the annual rental and fees specified and not to assign his lease or any part, nor let, nor sublet, either by grant or implication, the whole or any part of the premises without written consent of the State.
5. The Lessee agrees to keep the premises clean and in good order at his own expense, suffering no strip or waste thereof nor removing any material therefrom without written permission of the Lessor. At the expiration of the term fixed, or any sooner termination of the lease, the Lessee will peaceably and quietly quit and surrender the premises to the Lessor.
6. Building construction shall be neat and presentable and compatible with its use and surroundings. Prior to placing of fill material and/or construction of any building or facility on a leased area, the lessee must submit detailed drawings of proposed development of the property and, if a building is contemplated, comprehensive architectural drawings showing the location of all proposed utility lines, front, side, and plan elevation views of the proposed structure, materials to be used, dimensions, elevations, and all data subsequently requested by the Lessor, who shall review and approve, if satisfactory, in writing all major permanent improvements.
7. At the expiration of this lease, if the Lessee desires a renewal, he shall within thirty (30) days before the expiration make application in writing for a renewal, certifying under oath as to the character and value of all improvements existing on the land, facilities, properties, or interests therein, the purpose for which he desires a renewal and such other information as the State may require. The applicant shall deposit with such application the sum equivalent to 100 percent of the annual rental or fees still in effect. Such application, when fully conforming to the requirements herein stated, will extend the lease until such time as the State gives written notice to the Lessee that: (1) the request for renewal has been granted; or (2) the request for renewal has been rejected, stating the reasons for such rejection; or (3) the State has determined it to be in the best public interest or is required by law or regulation to offer the lease at public auction.
8. Should default be made in payment of any portion of the rent or fees when due, and for thirty (30) days thereafter, or in any of the covenants or conditions contained in this lease, the Lessor, agent or attorney, may re-enter and take possession of the premises, remove all persons therefrom, and upon written notice terminate the lease, if deficiency is not cured within said thirty (30) days.

It is agreed that until the Lessor elects to terminate this lease, interest at eight percent per annum accrues and is payable on all rents and fees due and unpaid beginning thirty (30) days following the date on which the rents or fees are due.

9. The amount of rents or fees specified herein shall be subject to increase or decrease at intervals of not less than five (5) years from the first day of July preceding the effective date of this lease. Increases or decreases shall be consistent with the provisions of Title 41, Chapter 10, Article 3, Section 340 (a) of the Alaska Administrative Code.

10. No building or other permanent structure shall be placed within ten (10) feet nor allowed to be placed within ten (10) feet of the boundary line of any lot held by a Lessee; provided, however, that where two or more lots held by the Lessee are contiguous the restriction in this condition shall apply only to the boundary lines separating such leased property from other airport property, and not to a common boundary line between contiguous parcels of land held by the Lessee.

11. No building or other permanent structure shall be placed within 50 feet of the property line fronting a landing strip, taxiway or apron without the written approval of the State. This area shall be used for parking aircraft only.

12. All written notices required by this lease or permit shall be sent by Registered or Certified Mail or delivered personally to the last address on record in the files of the Lessor.

13. The offer to lease is made subject to applicable laws and regulations of the State of Alaska and may be withdrawn without notice at any time after thirty (30) days from submission thereof unless within such thirty (30) days the Lessee executes and returns the lease to the Lessor.

14. The interests transferred or conveyed by this lease are subject to any all of the covenants, terms or conditions contained in the instruments conveying title or other interests to the Lessor.

15. Lessor shall have the right, at all reasonable times, to enter the premises, or any part thereof, for purposes of inspection.

16. Lessee covenants to save the Lessor harmless from all actions, suits, liabilities or damages resulting from or arising out of any acts of commission or omission by the Lessee, his agents, employees or customers, or arising from or out of the Lessee's occupation or use of the premises demised or privileges granted.

17. The Lessee agrees to furnish the Lessor an annual statement of gross business receipts and/or an annual sworn statement of the number of gallons of fuel and oil dispensed and/or any other certification of statement required by the Lessor to substantiate the computation of rents or fees.

18. The Lessee agrees to allow the Lessor or his authorized representative to audit the sales records of the Lessee at any reasonable time.

19. Any or all rents, charges, fees or other consideration which are due and unpaid at the expiration or voluntary or involuntary termination or cancellation of this lease shall be a charge against the Lessee, and his property, real or personal, and the State shall have such lien rights as are generally allowed by law, and enforcement by distraint may be made by the Lessor or its authorized agent.

20. The Lessee covenants and agrees that it will not, on the grounds of race, color, religion, national origin, ancestry, age or sex, discriminate or permit discrimination against any patron, employee, applicant for employment, or other person or group of persons in any manner prohibited by Federal or State law or regulations promulgated thereunder. The Lessee recognizes the right of the State to take such action to enforce such covenant as it deems necessary or as it is directed pursuant to any Federal or State law or regulation.

21. Lessor reserves the right to grant and control easements in, on or above the land leased. No such grant or easement will be made that will unreasonably interfere with the Lessee's use of the land.

22. Lessee agrees that Lessor may modify this lease to meet revised requirements for State or Federal grants, or to conform to the requirements of any revenue bond covenant to which the State is a party; provided that, in the case of modification to conform to the requirements of any revenue bond covenant the modification shall not act to reduce the rights or privileges granted the Lessee by this lease nor act to cause the Lessee financial loss.

23. Unless otherwise provided in a valid lease agreement, improvements owned by a Lessee on airport lands shall, within 60 days after the expiration, termination or cancellation of the lease, be removed by him; provided that, in the opinion of the State, such removal will not cause injury or damage to the lands; and further provided, that the State may extend the time for removing such improvements in cases where hardship is shown to its satisfaction, provided application for extension has been made in writing and received within said 60 day period. The retiring Lessee may, with the consent of the State, sell his improvements to the succeeding Lessee.

24. If any improvements and/or chattels having an appraised value in excess of \$10,000 as determined by the State are not removed within the time allowed by General Covenant No. 23 of this Lease Agreement, such improvements and/or chattels shall, upon due notice to the Lessee, be sold at public auction under the direction of the State. The proceeds of sale shall inure to the Lessee who owns such improvements and/or chattels after deducting and paying to the State all rents or fees due and owing and expenses incurred in making such sale. In case there are no other bidders at such auction, the State is authorized to bid on such improvements and/or chattels an amount equal to the amount owed to the State by the Lessee or \$1.00, whichever amount is greater. The Division of Aviation shall acquire all right, both legal and equitable, that any other purchaser would acquire by reason of such purchase.

25. If any improvements and/or chattels having an appraised value of \$10,000 or less, as determined by the State, are not removed within the time allowed by General Covenant No. 23 of this Lease Agreement, such improvements and/or chattels shall revert to and absolute title shall vest in the Division of Aviation.

26. This lease is issued subject to all provisions and requirements of the laws and regulations of the State of Alaska relating to leasing of airport lands and granting of privileges the same as though they were set forth in full over the signatures of the contracting parties.

27. If any term, provision, condition or part of this lease is declared by the Legislature or a court of competent jurisdiction of the State of Alaska to be invalid or unconstitutional, the remaining terms, provisions, conditions or parts shall continue in full force and effect as though such declaration was not made.

28. Lessee shall, within thirty (30) days after completion of any improvements placed upon or in the land described herein, deliver to the Lessor at least three copies of as-built drawings showing the location and construction specifications of said improvements; furthermore, if Lessee's improvement is underground, Lessee shall appropriately mark the surface of the land with a stake or otherwise identify the type of underground installation and its location.

29. Lessee will not install any radio transmitting equipment without the written approval of the Lessor, and will discontinue upon the request of the Lessor the use of any machinery or installation causing interference to the State or United States Government radio receiving or transmitting equipment until the cause of such interference is eliminated. The providing of said written approval shall be contingent upon there being no indication or belief that such an installation would be harmful to airport operations, or interfere with State or United States Government radio receiving or transmitting equipment.

30. The Lessee shall at his own expense, maintain and keep in force during the term of this lease, adequate insurance to protect both the Lessor and the Lessee against comprehensive public liability-products liability (where applicable) and property damage, in no less than the following amounts:

- (a) Property damage arising from one accident or other cause in a sum of not less than \$50,000.
- (b) Personal injury or death liability insurance not less than \$100,000 per person and \$300,000 per accident.

The Lessee shall deposit with the Lessor, a copy or copies of such insurance policy or policies or a certificate of such insurance coverage together with appropriate evidence that the premiums thereupon have been paid. All such insurance of the Lessee shall name the Lessor as an additional assured, contain a waiver of subrogation endorsement, and provide that the Lessor shall be notified at least thirty (30) days prior to any termination, cancellation, or material change in such insurance coverage.

Such requirement for insurance coverage shall not relieve Lessee of his obligations under this agreement.

31. The Lessee shall at his own cost and expense conduct all business authorized herein in compliance with all Federal, State and local laws, ordinances, rules and regulations now or hereafter in force which may be applicable to the operation of the business authorized herein or to the use, care, operation, maintenance and protection of the airport; including but not limited to matters of health, safety, sanitation and pollution. The Lessee shall obtain and pay for all licenses and permits necessary for the operation of such business and shall pay all taxes which may be lawfully imposed upon the premises or operation(s) of the Lessee within or upon the premises; and shall pay such other fees and charges as may be assessed under applicable public statutes or ordinances.

32. The failure of the Lessor to insist in any one or more instances upon a strict performance by the Lessee of any of the provisions, terms, covenants, reservations, conditions or stipulations contained herein may not be considered as a waiver or relinquishment thereof for the future, but the same shall continue and remain in full force and effect, and no waiver by the Lessor of any provision, term, covenant, reservation, condition or stipulation herein may be deemed to have been made in any instance unless expressed in writing by the Lessor.

33. In case of any national emergency, as declared by the Federal Government, neither party may be held liable for any inability to perform any or all of the terms herein due to such national emergency.

34. This lease shall not be valid unless approved in writing by the Director of the Division of Aviation, Department of Public Works.

SPECIAL COVENANTS

1. The Lessee hereby agrees to assume full control and sole responsibility for its activities, structures, and personnel on the property being leased. Further, the Lessee agrees to promptly consider and adjudicate any and all claims which arise out of its operations on the demised premises and to pay for any damage done to the land or other property of the Lessor. Such adjudication may be made under the Federal Tort Claims Act, 28 USC 2671, et seq.; or under such other authority as may be available to the Lessee. Such consideration shall be given to all claims, demands or suits arising directly or indirectly from the operations of the Lessee incident to the performance of said activity.

IN WITNESS WHEREOF, the parties hereto have set their hands the day and year stated in the acknowledgments below.

(CORPORATE SEAL)
(IF APPLICABLE)

United States of America
LESSEE, (Department of the Air Force)

BY: Earl R. Tubach
EARL R. TUBACH

TITLE: Chief, Real Estate Division
Department of the Army

~~BY~~ Alaska District, Corps of Engineers

TITLE: _____

STATE OF ALASKA)
THIRD) ss
(Judicial District or County)

On this 25th day of April, 19 73, before me, a Notary Public, personally appeared the above signed person(s); known to me to be the person(s) who executed the above CONTRACT, and (he) (she) ~~(they)~~ acknowledged to me that (he) (she) ~~(they)~~ had the authority to and did sign the same voluntarily and of (his) (her) ~~(their)~~ own free will(s) for the purposes stated therein.

IN WITNESS WHEREOF I have set my hand and seal the day and year above written.

Lucille Steelman
Notary Public
My commission expires 9-17-76

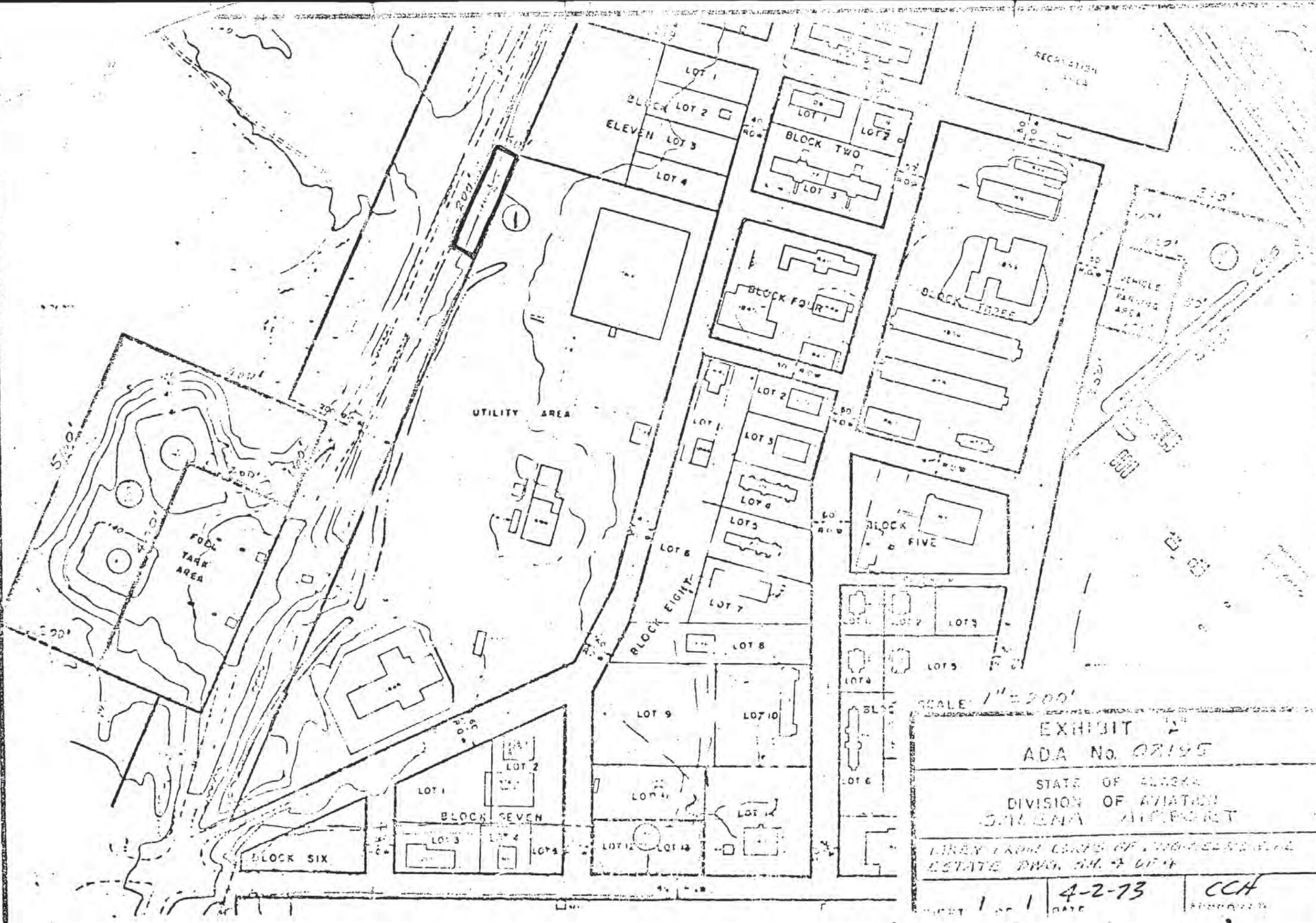
LESSOR, STATE OF ALASKA
Ed Granger
Director, Division of Aviation
Department of Public Works

STATE OF ALASKA)
THIRD JUDICIAL DISTRICT) ss

On the 8th day of May, 19 73, before me, a Notary Public in and for the State of Alaska, personally appeared Ed Granger, known to me to be the person who executed the above CONTRACT, and he acknowledged to me that he had the authority to and did sign the same voluntarily and of his own free will for the purposes stated therein.

IN WITNESS WHEREOF I have set my hand and seal the day and year above written.

Kay Klecka
Notary Public in and for the State
of Alaska
My commission expires May 25, 1975



SCALE: 1" = 200'

EXHIBIT 2

ADA No. 02195

STATE OF ALASKA

DIVISION OF AVIATION

SIEMENA AIRPORT

LINEY FROM CORNER OF ...

ESTATE P.W.G. ...

1 of 1

DATE 4-2-73

CCH

12-12-13

Dep
Do Not Scan

LEASE
FROM
STATE OF ALASKA
FOR
CONSTRUCTION OF SOLID
WASTE DISPOSAL FACILITY

DACA 85-5-73-60
(ADA 02195)

0.23 AC
Tract 400, area #1
Rent \$1.00

TRACT 400 LE

GALENA

FACILITY
92-200

VOUCHER
74-0289
74-0706

EXPIRATION
1 July 2027

13-C-
1/71

STATE OF ALASKA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF AVIATION

Galena Airport
DACA 85-5-73-60

LEASE AGREEMENT

LEASE NO. ADA-02195

THIS INDENTURE, made this 5 day of April, 19 73, by and between the State of Alaska, Lessor, and United States of America (Department of the Air Force), Lessee, whose address is c/o Alaska District Corps of Engineers, P.O. Box 7002, Anchorage, Alaska 99510.

WITNESSETH:

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for the term of 55 year(s) from the first day of July, 19 72, to the first day of July, 2027, at the annual rental of \$ 1.00 for the term. ~~Receipt of \$5500.00 is hereby acknowledged.~~ Right of Entry and Occupancy is authorized as of the 1 day of April, 19 73.

The purposes for which this lease is issued are:

Construction, maintenance and operation of a solid waste disposal facility with connecting access ramp.

and the Lessee agrees to continue to use the land or privilege granted uninterrupted by periods which in the aggregate amount to more than one year.

74-0289

Handwritten initials

GENERAL COVENANTS

1. Except as provided herein, any regular use of land or facilities without the written consent of the State is prohibited. This prohibition shall not apply to use of areas designated by the State for specified public uses such as, but not necessarily limited to: passenger terminals, automobile parking areas, roads and streets.
2. Solicitation of donations, begging, panhandling, loitering, or the promotion or operation of any part or kind of business or commercial enterprise upon, in or above airport lands without the written consent of the State is prohibited.
3. Any or all personal or real property placed or used upon lands or in facilities in violation of the preceding prohibitions may be removed and/or impounded by the State, and when so removed and/or impounded, such property may be redeemed by the owner thereof only upon the payment to the State of the costs of removal plus storage charges of \$1.00 per day in the case of each aircraft of not more than 6,000 pounds gross weight or \$5.00 per day in the case of each building, each aircraft in excess of 6,000 pound gross weight, or in the case of any other kind of property, an amount as determined by the State to be reasonable.
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It is agreed that until the Lessor elects to terminate this lease, interest at eight percent per annum accrues and is payable on all rents and fees due and unpaid beginning thirty (30) days following the date on which the rents or fees are due.

9. The amount of rents or fees specified herein shall be subject to increase or decrease at intervals of not less than five (5) years from the first day of July preceding the effective date of this lease. Any increases or decreases shall be consistent with the provisions of Title 41, Chapter 10, Article 3, Section 340 (a) of the Alaska Administrative Code.

10. No building or other permanent structure shall be placed within ten (10) feet nor allowed to be placed within ten (10) feet of the boundary line of any lot held by a Lessee; provided, however, that where two or more lots held by the Lessee are contiguous the restriction in this condition shall apply only to the boundary lines separating such leased property from other airport property, and not to a common boundary line between contiguous parcels of land held by the Lessee.

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13. The offer to lease is made subject to applicable laws and regulations of the State of Alaska and may be withdrawn without notice at any time after thirty (30) days from submission thereof unless within such thirty (30) days the Lessee executes and returns the lease to the Lessor.

14. The interests transferred or conveyed by this lease are subject to any all of the covenants, terms or conditions contained in the instruments conveying title or other interests to the Lessor.

15. Lessor shall have the right, at all reasonable times, to enter the premises, or any part thereof, for purposes of inspection.

16. Lessee covenants to save the Lessor harmless from all actions, suits, liabilities or damages resulting from or arising out of any acts of commission or omission by the Lessee, his agents, employees or customers, or arising from or out of the Lessee's occupation or use of the premises demised or privileges granted.

17. The Lessee agrees to furnish the Lessor an annual statement of gross business receipts and/or an annual sworn statement of the number of gallons of fuel and oil dispensed and any other certification of statement required by the Lessor to substantiate the computation of rents or fees.

18. The Lessee agrees to allow the Lessor or his authorized representative to audit the sales records of the Lessee at any reasonable time.

19. Any or all rents, charges, fees or other consideration which are due and unpaid at the expiration or voluntary or involuntary termination or cancellation of this lease shall be a charge against the Lessee and his property, real or personal, and the State shall have such lien rights as are generally allowed by law, and enforcement by distraint may be made by the Lessor or its authorized agent.

20. The Lessee covenants and agrees that it will not, on the grounds of race, color, religion, national origin, ancestry, age or sex, discriminate or permit discrimination against any patron, employee, applicant for employment, or other person or group of persons in any manner prohibited by Federal or State law or regulations promulgated thereunder. The Lessee recognizes the right of the State to take such action to enforce such covenant as it deems necessary or as it is directed pursuant to any Federal or State law or regulation.

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22. Lessee agrees that Lessor may modify this lease to meet revised requirements for State or Federal grants, or to conform to the requirements of any revenue bond covenant to which the State is a party; provided that, in the case of modification to conform to the requirements of any revenue bond covenant the modification shall not act to reduce the rights or privileges granted the Lessee by this lease nor act to cause the Lessee financial loss.

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24. If any improvements and/or chattels having an appraised value in excess of \$10,000 as determined by the State are not removed within the time allowed by General Covenant No. 23 of this Lease Agreement, such improvements and/or chattels shall, upon due notice to the Lessee, be sold at public auction under the direction of the State. The proceeds of sale shall inure to the Lessee who owns such improvements and/or chattels after deducting and paying to the State all rents or fees due and owing and expenses incurred in making such sale. In case there are no other bidders at such auction, the State is authorized to bid on such improvements and/or chattels an amount equal to the amount owed to the State by the Lessee or \$1.00, whichever amount is greater. The Division of Aviation shall acquire all right, both legal and equitable, that any other purchaser would acquire by reason of such purchase.

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26. This lease is issued subject to all provisions and requirements of the laws and regulations of the State of Alaska relating to leasing of airport lands and granting of privileges the same as though they were set forth in full over the signatures of the contracting parties.

27. If any term, provision, condition or part of this lease is declared by the Legislature or a court of competent jurisdiction of the State of Alaska to be invalid or unconstitutional, the remaining terms, provisions, conditions or parts shall continue in full force and effect as though such declaration was not made.

28. Lessee shall, within thirty (30) days after completion of any improvements placed upon or in the land described herein, deliver to the Lessor at least three copies of as-built drawings showing the location and construction specifications of said improvements; furthermore, if Lessee's improvement is underground, Lessee shall appropriately mark the surface of the land with a stake or otherwise identify the type of underground installation and its location.

29. Lessee will not install any radio transmitting equipment without the written approval of the Lessor, and will discontinue upon the request of the Lessor the use of any machinery or installation causing interference to the State or United States Government radio receiving or transmitting equipment until the cause of such interference is eliminated. The providing of said written approval shall be contingent upon there being no indication or belief that such an installation would be harmful to airport operations, or interfere with State or United States Government radio receiving or transmitting equipment.

30. The Lessee shall at his own expense, maintain and keep in force during the term of this lease, adequate insurance to protect both the Lessor and the Lessee against comprehensive public liability, products liability (where applicable) and property damage, in no less than the following amounts:

- (a) Property damage arising from one accident or other cause in a sum of not less than \$50,000.
- (b) Personal injury or death liability insurance not less than \$100,000 per person and \$300,000 per accident.

The Lessee shall deposit with the Lessor, a copy or copies of such insurance policy or policies or a certificate of such insurance coverage together with appropriate evidence that the premiums thereupon have been paid. All such insurance of the Lessee shall name the Lessor as an additional assured, contain a waiver of subrogation endorsement, and provide that the Lessor shall be notified at least thirty (30) days prior to any termination, cancellation, or material change in such insurance coverage.

Such requirement for insurance coverage shall not relieve Lessee of his obligations under this agreement.

31. The Lessee shall at his own cost and expense conduct all business authorized herein in compliance with all Federal, State and local laws, ordinances, rules and regulations now or hereafter in force which may be applicable to the operation of the business authorized herein or to the use, care, operation, maintenance and protection of the airport; including but not limited to matters of health, safety, sanitation and pollution. The Lessee shall obtain and pay for all licenses and permits necessary for the operation of such business and shall pay all taxes which may be lawfully imposed upon the premises or operation(s) of the Lessee within or upon the premises; and shall pay such other fees and charges as may be assessed under applicable public statutes or ordinances.

32. The failure of the Lessor to insist in any one or more instances upon a strict performance by the Lessee of any of the provisions, terms, covenants, reservations, conditions or stipulations contained herein may not be considered as a waiver or relinquishment thereof for the future, but the same shall continue and remain in full force and effect, and no waiver by the Lessor of any provision, term, covenant, reservation, condition or stipulation herein may be deemed to have been made in any instance unless expressed in writing by the Lessor.

33. In case of any national emergency, as declared by the Federal Government, neither party may be held liable for any inability to perform any or all of the terms herein due to such national emergency.

34. This lease shall not be valid unless approved in writing by the Director of the Division of Aviation, Department of Public Works.

SPECIAL COVENANTS

1. The Lessee hereby agrees to assume full control and sole responsibility for its activities, structures, and personnel on the property being leased. Further, the Lessee agrees to promptly consider and adjudicate any and all claims which arise out of its operations on the demised premises and to pay for any damage done to the land or other property of the Lessor. Such adjudication may be made under the Federal Tort Claims Act, 28 USC 2671, et seq.; or under such other authority as may be available to the Lessee. Such consideration shall be given to all claims, demands or suits arising directly or indirectly from the operations of the Lessee incident to the performance of said activity.

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IN WITNESS WHEREOF, the parties hereto have set their hands the day and year stated in the acknowledgments below.

(CORPORATE SEAL)
(IF APPLICABLE)

United States of America
LESSEE, (Department of the Air Force)

BY: Earl R. Tubach

EARL R. TUBACH
TITLE: Chief, Real Estate Division
Department of the Army

BY: Alaska District, Corps of Engineers

TITLE: _____

STATE OF ALASKA }
THIRD } ss
(Judicial District or County)

On this 25th day of April, 19 73, before me, a Notary Public, personally appeared the above signed person(s), known to me to be the person(s) who executed the above CONTRACT, and (he) (she) (they) acknowledged to me that (he) (she) (they) had the authority to and did sign the same voluntarily and of (his) (her) (their) own free will(s) for the purposes stated therein.

IN WITNESS WHEREOF I have set my hand and seal the day and year above written.

Lucille Steelman
Notary Public
My commission expires 9-17-76

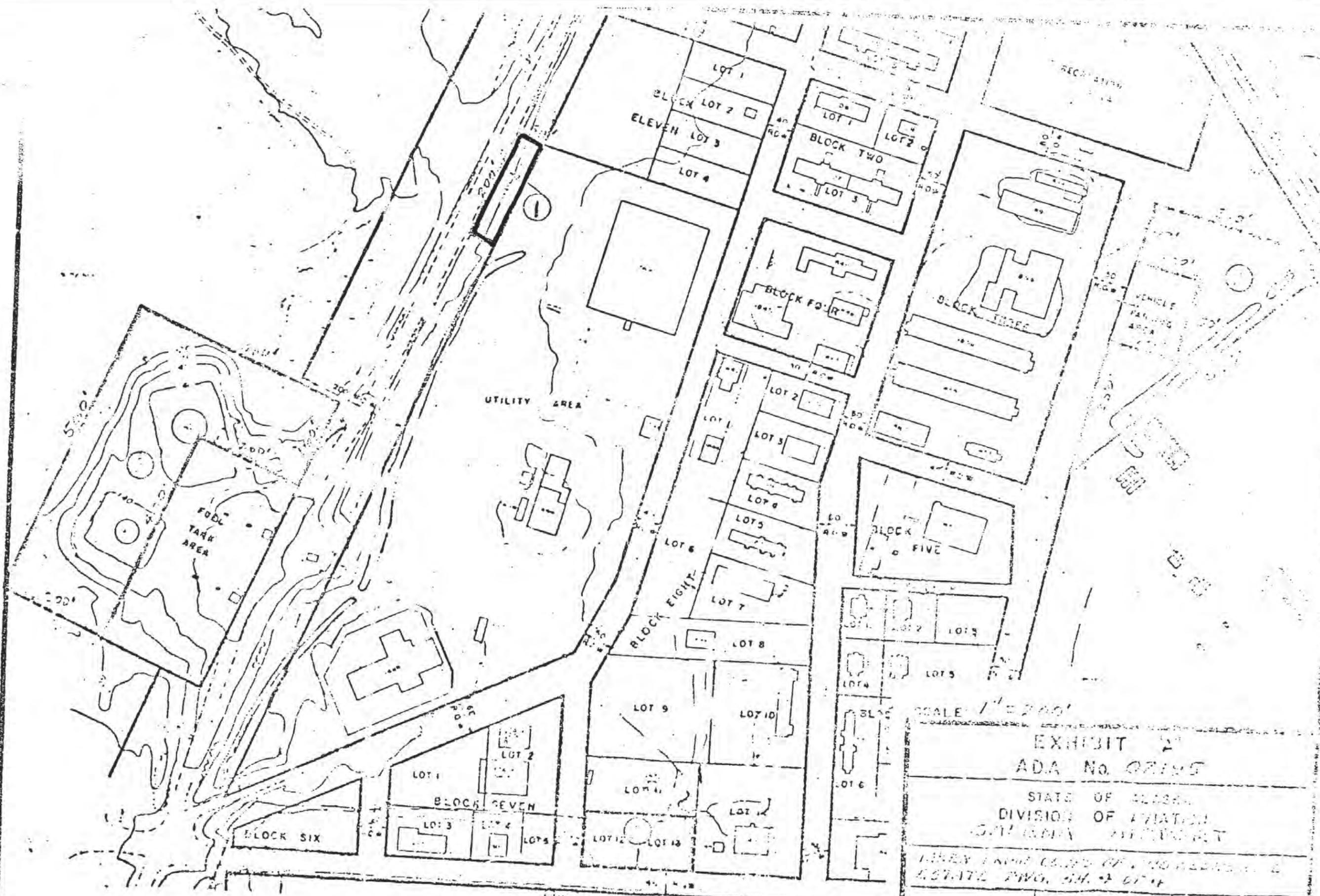
LESSOR, STATE OF ALASKA
Ed Granger
Director, Division of Aviation
Department of Public Works

STATE OF ALASKA }
THIRD JUDICIAL DISTRICT) ss

On the 8th day of May, 19 73, before me, a Notary Public in and for the State of Alaska, personally appeared Ed Granger, known to me to be the person who executed the above CONTRACT, and he acknowledged to me that he had the authority to and did sign the same voluntarily and of his own free will for the purposes stated therein.

IN WITNESS WHEREOF I have set my hand and seal the day and year above written.

Kay Kletka
Notary Public in and for the State
of Alaska
My commission expires May 25, 1975



SCALE 1" = 200'

EXHIBIT 2

ADA No. 02195

STATE OF OREGON
 DIVISION OF AVIATION
 OREGON AIRPORT

LIBBY ENGINEERING CO., PORTLAND, OREGON
 ESTATE TWO, SH. 7 OF 4

4-2-73 | CCA

